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ORIGINAL LECTURES.

THE FREQUENT DEPENDENCE OF DISEASE OF THE EAR UPON CATARRHAL DISEASE OF THE NOSE.

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THERE have come under my observation so many cases of hardness of hearing in which the throat has been considered the starting-point of the aural disease, and in which the nares, though manifestly the real seat of the original disease, have not been even examined, that my interest in such cases has been especially enlisted. Since aural disease caused purely by throat affections is rarely, if ever, seen, and since all catarrhal diseases of the middle ear, whether acute or chronic, are caused by, or closely associated with, nasal disease, I have proposed to speak to you at this time upon the important causal relation between rhinitis and aural diseases. And, if I succeed in directing your attention to the nares, rather than to the throat, as the seat of the original cause of most cases of catarrhal deafness, I shall be amply rewarded. For I shall feel that I have rendered you a service, if I succeed in disabusing your minds of the erroneous and misleading idea that from the fauces catarrhal ear-disease usually springs. It requires but a little reflection, upon the anatomy and physiology of the nasal cavities, the nasopharynx, the Eustachian tubes, and the middle ears, to see how this should be so. These parts are in intimate relation, both anatomically and physiologically; whereas the fauces and the larynx are connected with the pulmonary system, and their diseases go downward to the lungs, rather than upward to the ears.

It is, therefore, to the structure, and then to an important disease of the nasal and naso-pharyngo-aural mucous membrane, that I especially call your attention. In the nasal cavities there can be distinguished a thick mucous membrane, rich in glands, from a thinner portion, poor in glands, found in the sinuses, on the under surface of the turbinated bones, and in the middle ear. Hence at some places in the nares, like the borders of the cartilaginous septum, and on the inferior turbinated bones, the diameter of the mucous membrane may amount to from 2–4.5 mm. Here the thickness of the mucous membrane does not depend, however, solely on glandular and submucous tissue, but also upon numerous, almost cavernous venous plexuses, or sinuses, especially developed at the edge and posterior extremity of the inferior turbinated bones. These sinuses extend from the interior of the structure outward, so that there is thus formed a kind of erectile tissue at these points in the nose—a most cardinal consideration in the study and treatment of naso-aural disease.

Immediately behind the nasal cavities are found the nasopharynx and Eustachian tubes. The latter may be considered, practically, continuations of the nasal cavities. The mucous membrane of the Eustachian tubes possesses a ciliated epithelium like that of the nasal cavities, especially in the upper and osseous part of the tube.[1] In the lower part of the Eustachian tube, the mucous membrane is richly studded with acinous glands, and it is also thrown into peculiar folds, which are intimately connected with the mechanism of the tube. An inflammation of these districts, therefore, becomes a serious disease, difficult to treat. In the nasopharynx is found, in addition to mucous membrane, rich also in glands and folds of membrane, the peculiar adenoid structure known as the pharyngeal tonsil. These tissues are all more or less erectile, and are extremely liable to be affected by an inflammation in the nares. When these tissues in the nasopharynx and the Eustachian tubes are congested and inflamed, the normal ventilation of the nasopharynx, the Eustachian tube, and middle ear, is impeded, and incipient ear disease, with deafness, is imminent.

Mechanism of the Eustachian Tube.—The Eustachian tube is one-third an osseous canal and two-thirds musculo-cartilaginous, but is lined throughout with mucous membrane. The osseous portion is nearest the tympanum, while the muscular part is in the nasopharynx. A transverse section of the tube in its lower or muscular part shows that its posterior wall is composed of cartilage, and its anterior or lateral wall of muscular and fibrous tissue. The posterior wall curves upward and forward, so that its transverse section is shaped like a shepherd's crook. This wall is firmly fixed to the base of the skull. The anterior or membranous wall is found to give attachment to the fibres of the tensor palati muscle, and is movable. A transverse section of this tube is also somewhat crook-shaped like that of the cartilaginous wall. The part of the lumen under the crook is very narrow but is always patulous from the rigidity of the cartilage which forms its boundaries, and thus constitutes the so-called "safety-tube" of Rüdinger, because, being thus ever patulous, it permits a quick recoil of air from the tympanic cavity. This prevents rupture of the membrana when it is forced inward by any sudden condensation of air or an explosive force, in or about the external ear.

The lower and by far the major part of the calibre of the tube is below the hook in the cartilaginous wall. It resembles, in a state of rest, a mere chink between the cartilaginous and muscular walls, the sides of which are studded with glands, and the mucous membrane of which is thrown into folds. These latter features are especially marked in the parts near the nasopharynx.

[1] It must also be borne in mind that the nerves of the Eustachian tube are derived chiefly from the tympanic and pharyngeal plexus, and that its vascular supply comes from the tympanic and pharyngeal vessels.

The Eustachian tube is opened by the separation of the anterior wall from the posterior. This is effected chiefly by the action of the tensor and levator palati muscles. For, at each elevation and tension of the velum palati, the anterior wall of the tube is drawn away from the posterior wall and the entire lumen is thus rendered momentarily patulous, and the air from the nares and nasopharynx aërates the drum-cavity.

The function of the Eustachian tube is, at each act of swallowing, to supply air to the tympanic cavity, and thus maintain an equilibrium in the air-pressure on each side of the membrana tympani. This holds the membrana and the chain of ossicles in a state of isolation, as physicists term it, and ready for proper, pendulum-like oscillation, or vibrations, upon which hearing depends. If the membrana is not thus maintained in a state of equilibrium as to the pressure of air on either side, the membrane yields to the greater pressure on one side, and sinks inward or bulges outward according to the direction of greater pressure. In the first state, that of retraction, the chain of bonelets is locked, their joints are held too tight, they cannot vibrate freely and hearing is impaired at once. When the membrane bulges outward, it draws the malleus away from the incus, the normal medium of auditory vibrations is thus disturbed and hearing is altered. The first state, that of retraction of the membrane and locking of the chain of bonelets, may occur in acute coryza and in other catarrhal processes involving the nasopharynx, because the mucous membrane in the nasopharynx and about the mouth of the Eustachian tube is swollen so as to impede the proper opening of the tube, and the ventilation of the tympanic cavity. In chronic catarrhal processes the disease of the mucous tissues may become so great as to extend to the underlying muscular tissues and there induce a form of paresis which renders the muscles inefficient in a ready opening of the Eustachian tube, and normal airing of the tympanic cavity. It is easily seen, therefore, how important an inflammation in the naso-pharyngo-aural mucous membrane becomes. Such an inflammation has received the name of catarrh, or catarrh in the head. In our language the term catarrh is limited, in the present day, almost entirely to inflammation of a subacute or chronic form, in the nares and naso-pharyngo-Eustachian mucous tissues.

The symptoms of ordinary acute coryza are too well known to require enumeration or close description here. There are, however, some reflex nervous symptoms and aural phenomena connected causally with coryza and rhinitis which demand our attention. These, with their treatment, should receive due regard from every practitioner of medicine, because upon their prompt recognition and proper treatment often depends the function of hearing. The duration of the symptoms of acute rhinitis varies from three or four days to as many weeks, although after lasting the latter period it may begin to assume a chronic form. The voice assumes the nasal twang when the anterior nares are chiefly affected; when the posterior nares are the chief seat of swelling, *m* is pronounced as *b*, and *n* as *d*. Then, too, the Eustachian tube is more or less involved in the swelling of the mucous membrane, and its permeability is impaired, as shown by the tinnitus aurium, the altered quality of sounds, or decided hardness of hearing. If the sinuses are implicated, there is pain in them; or if the middle turbinated bones are pressed upon (Allen), there may be a pain in the temporal or parietal region, or even in the vertex. When such a grade of catarrhal swelling has invaded the nasopharynx and the nares, there may be dull and fugitive pains in the ears, which may settle into constant earache when relief is not given to the closed tympanic cavity. In infants the symptoms are often serious, as they cannot suck, on account of their closed nares, and their ears may become either the seat of acute inflammation, inducing convulsions, or the Eustachian tubes may become chronically closed, producing deaf-dumbness.

An excitation of the nasal mucous membrane induces reflex phenomena—*e. g.*, lachrymation, copious secretion of nasal mucus, reflex cough, disturbed respiration and phonation, asthma, spasm of the larynx, and spasmodic aphonia. It is also claimed by some that epilepsy may be evoked by chronic nasal irritation. It is a fact that congestion of the membrana tympani, and of the anterior wall of the external auditory canal near the membrana, and dull earache, are produced by acute rhinitis. These are purely reflex phenomena in many instances, being due to diminished inhibitory power in the vasomotor nerves of this region. Vessel dilatation and passive congestion, passing often into inflammation, are the results. It was once supposed that inflammation of the ear in rhinitis was due to direct extension of inflammation from the nares, through the Eustachian tube to the middle ear. This may, indeed, occur; but sometimes the external surface of the membrana and the external auditory canal alone are found inflamed in acute coryza, the Eustachian tube and middle ear remaining intact. The path of nervous connection in such cases is through the nasal branches of the sphenoid palatine ganglion, and thence by the sympathetic connection with the carotid plexus to the vessels supplied by the carotid to the membrana tympani, and those parts of the external auditory canal near it.

Predisposing causes of acute rhinitis are childhood and the strumous diathesis, in which the tonsils, the nasopharynx, and the Eustachian tube are likely to be affected. Also those who lead a sedentary life, the rheumatic, those with feeble respiratory systems, and the nervous, are prone to nasal catarrh.

The exciting cause is usually exposure to cold, though exposure to the heat of the sun, and confinement in hot apartments, may also induce an acute coryza. According to Morell Mackenzie, coryza occurs epidemically "only when a sudden lowering of the temperature coincides with an increased humidity of the air." There is no evidence that acute coryza is infectious, and the experiments of Friedreich on inoculation upon himself were negative in their result.

No less an authority than the late Cohnheim, said: "The essence of inflammation is not to be found in either the dilatation of the vessels, in the increased rapidity of the flow of the blood, or in the subsequent contraction of the vessels, but in some unexplained local change in the walls of the vessels of the part affected." What this change is, he was not able to say, as he had not succeeded in finding any structural alteration. Nevertheless, discussion of the etiology of coryza and of the *modus operandi* of the alterations produced by chronic catarrh in the upper air-tract, seems

desirable. While indisposed to ascribe catarrh of the nares to cold entirely, yet I confess to belonging to that part of the profession which believes that a change of temperature, most usually an influx of colder air upon the mucous membrane of the nares and fauces, and upon the general surface, in what may be termed an unprepared state, causes acute rhinitis, or a cold in the head.

As soon as inflammation has set in, in such a tract, exposed as it is in a high degree to the atmosphere, I can easily see how it is that germs are found in the results of inflammation very soon in the course of the disease; but these are emphatically *post hoc* and not *propter hoc*, in their occurrence. They appear because a fitting soil for germ growth is then supplied by the inflamed mucous membrane and the morbid and decomposing secretions.

An example of such occurrence of germs and mycelial development after irritation and inflammation of living tissue, is seen in the growth of aspergillus in the auditory canal and over the membrana tympani. Here the irritation and abrasion of the skin tissues come first, according to my observation, either from undue efforts of the patient at scratching or cleansing the meatus, or from a furuncle. A little serum or blood is thus exposed to the saprophyte, it settles on the already wounded tissue, and grows. The inflammation is usually increased by the growth of the parasite, but it is most surely not caused by it. So in catarrh of the nares; the germs described as causative in this disease are most probably the result of the lodgement of germs, always to be found in the atmosphere, and hence easily brought to the air-passages, where, in the catarrhal state, is furnished a soil favorable to the full development of a so-called specific disease-germ.

Were this not so, all the so-called prodromes of coryza must be held to be sequences of the lodgement of "coryza germs" in the nares, their invasion of the submucous tissues, and of their development therein: which no one is quite ready to assume. It may, however, be admitted that a specific germ may specifically aggravate an inflammatory process already established in the nasal mucous membrane, but until it can be shown that it is the entrance of such a germ into the nares which inclines the skin to become chilled and the nasal mucous membrane to become congested, it cannot be said that the germ produces coryza. At certain times, and in some conditions of the atmosphere, there may be an excessive number of irritating germs in the air we breathe, and at such times a coryza may be more easily contracted, or, if already existing, may be made worse.

Coryza is, in reality, due to inflammation of the part of the body offering, as it is aptly termed, the "least resistance" at the time of exposure to changes of temperature.

The theory of "least resistance," to which I adhere, is somewhat like this, as set forth by Niemeyer: At a given time there is a certain quantity of blood in the body, evenly diffused throughout the vascular tract. If a contraction or congestion take place at any point in this tract, an over-distention must ensue in some other part as a compensation. This causes a congestion in the compensating region. Thus, after extensive burns of the skin, inflammation may ensue in the bowels. It is claimed that, like all fluids, the blood, when compressed at any point, will seek a recoil at the point of least resistance, and thus, in the instances alluded to, certain parts far from the original irritation are congested, and even profoundly and fatally inflamed.

It is further claimed that the mucous membrane of the respiratory tract is more liable to be congested than other parts of the body, because it is rarely ever free from irritation by foreign substances, especially in so-called civilized communities. Dust acts as an irritant, and the impure air of houses, factories, schools, etc., lowers the tone of the capillaries of the respiratory tract, and renders them still more liable to inflammations. Thus, when the temperature of the surface of the body is unduly or suddenly lowered, the upper respiratory tract, especially the nasal cavities, becomes easily and quickly congested and inflamed, and we say we have "taken cold."

If the attacks of coryza, or "cold in the head," become numerous; if the patient begins to take cold easily, as it is termed, the nares, the point of least resistance in such a case, soon become chronically engorged and a tendency to chronic nasal and aural catarrh is developed.

The Nares in Infants.—In the nasal cavities in infants the meatuses are very narrow, and the free edge of the inferior turbinated bone is longer and curved further around into the meatus so that there is scarcely any passage.[1] The relative smallness is most marked in the middle meatus. Infants in health breathe naturally through their nares, which obviates mouth-breathing and favors a healthy condition of the nasopharynx and Eustachian tube. But the natural smallness of the nasal meatuses favors their easy closure by a swelling of their mucous membrane, such as a coryza would induce.

This liability to a greatly stopped nose in infants favors the development of chronic nasal catarrh of the hypertrophic form, closure of the Eustachian tube, and chronic catarrh of the middle ear, with profound hardness of hearing. This condition in infants is most disastrous, as it tends to make them deaf-mutes. It is thus, without doubt, that many cases of so-called congenital deaf-dumbness are brought about, the deafness being in fact due to a neglected, because unrecognized chronic hypertrophic nasopharyngeal catarrh occurring soon after birth. The process is similar to that in an adult, but more intense and more rapid, and occurring at a time when the child must hear in order to learn to talk, the deafness interferes with this acquisition and the sufferer becomes a mute. I have seen cases in which there was a clear history of such a catarrhal process in the first year of life, and no history of any other malady to account for the deafness. Congenital deafness is most rare; it is indeed very doubtful whether it ever occurs, excepting in an otherwise malformed child. In all cases of so-called congenital deafness, unless there is a distinct history of a traumatic or febrile cause, I have found that the undoubted cause has been a chronic and neglected rhinitis, ending in chronic catarrhal otitis media. The hyperplastic tendency being great at this age, the deafness soon becomes profound and permanent. The lesion at first is most probably occlusion of the Eustachian tube and ankylosis of the chain of ossi-

[1] Kohts and Lorent, 1878.

cles. Finally there is degeneration of the nerve filaments in the labyrinth. The prognosis is, of course, most unfavorable, unless the disease is recognized and treated at the beginning.

Earache in Children.—Acute coryza in children is especially likely to produce congestion of the vascular and glandular mucous membrane of the nares and nasopharynx, closure of the Eustachian tube, mouth-breathing, and earache. This does not always produce rupture of the drum membrane. The state of congestion seen in these cases seems to intermit in daytime, nose-breathing gets easier, mouth-breathing less frequent, and the earache may pass off, so that the child plays around the house, or even goes to school or plays in the open air. If, however, the membrana tympani be examined, it will be found that it does not lose its congestion, but remains red and macerated or infiltrated in appearance. As night comes on, the nares and nasopharynx become more congested and the ear begins to ache again. This catarrhal otitis may continue for several days without any more severe symptoms than I have given. On the other hand, the symptoms may suddenly grow worse, the patient may have a continuous and severe pain in the ear with an intensity of suffering which is relieved at last by a rupture of the membrane and the escape of muco-pus from its tympanic cavity. In infants, such a tympanic inflammation, resulting from a coryza, may induce convulsions, or even meningitis and death, without the discovery of the true aural origin of the disease. In such an instance the convulsions and brain disease are attributed erroneously to teething, that great scapegoat, which is supposed to produce diarrhœa in summer-time, and coryza in winter-time.

The results of inflammation in the nares and nasopharynx are easily divided into the acute and the chronic. The acute inflammation soon passes on to exudation, the exudate consisting of the blood-plasma with leucocytes. Generally, however, after such an acute inflammation, the mucous membrane returns to its normal condition. At all stages of a catarrh, however, there is a swelling of the mucous membrane which leads to obstruction of the nares and other passages connected with them, all of which are temporary in acute forms. In the chronic forms a permanent thickening of mucous membrane in the nose, Eustachian tube, and middle ear ensues.

In adults, and also in some children, the earlier and simplest effect of a cold in the head, upon the ears and the hearing, is a slight stuffed sensation in one or both ears, with subjective buzzing, singing, or pulsating sounds in the ear, and, in some instances, an alteration in one's own voice and in the hearing. This may be at first a hyperæsthesia, or it may be a slight impairment in the auditory sense. These symptoms may all pass away as the nares get clearer, without any treatment. But these simpler phenomena, in and about the Eustachian tube and middle ear, may become intensified. The stuffed feeling may increase, itching and pain may pass from the back part of the nares into the ear, and an acute otitis media catarrhalis may be developed, with decided impairment of hearing.

These phenomena may also gradually subside by a form of resolution, in the course of three or four days or a week, leaving at most a stuffed and crackling sensation from the hypersecretion in the Eustachian tube and the middle ear. Gradually these products may be absorbed, the tissues may reassume their normal tenuity, the hearing may be reëstablished, and the attack forgotten, without any special treatment.

Frequently, however, the catarrhal congestion and closure of the Eustachian tube do not terminate by this fortunate resolution, but all the symptoms grow worse; there is earache, and there is developed an acute purulent inflammation of the middle ear. These cases generally terminate by a perforation of the membrana tympani, an escape of muco-purulent matter and pus from the tympanic cavity by the way of the external meatus of the canal, and for the time being, at least, there is hardness of hearing. Such a process may involve both ears, though usually only one ear is affected in this manner by an acute coryza.

The Chronic Form.—The surgeon now begins, in the observation of such a case of aural inflammation, to approach the chronic results of catarrhal processes in the nares and nasopharynx. For after a perforation of the membrana and the appearance of a purulent discharge, the disease loses its acute form and assumes more or less chronicity. It will be found that a similar chronicity or subacuteness has been assumed by the disease of the nasal and nasopharyngeal tissues. The medical attendant is now called upon to investigate most thoroughly the condition of the inflamed parts, and to treat them as will be shown later.

I have thus sketched the course of a catarrhal process in the nares and middle ear, which has ended in suppuration and the destruction of tissue. There are, however, *more* cases in which the catarrhal process in the nares and nasopharynx tends to a thickening of the tissues in the nares, Eustachian tube, and middle ear than to suppuration and destruction of tissue.

These are the true chronic catarrhal processes, assuming from the outset a tendency to chronicity, appearing with every cold, getting a little worse with each such attack, or with some other constitutional malady, and finally gliding into truly chronic nasal and aural catarrh, with more or less profound deafness. These are hypertrophic processes, to begin with, in which there is a tendency to the formation of hypertrophy in the nasal mucous membrane, especially on the turbinated bones and in the Eustachian tube. Such a process in the naso-Eustachian tract leads to thickening of the mucous membrane in the drum cavity, and to retraction of the membrana tympani. Their onset is often insidious, without the fulminant attack of the purulent form, which, if properly managed, usually terminates favorably in every way.

The chronic catarrhal process, with the hypertrophic tendency, however, often attracts little or no attention at first. It is noted that colds in the head, or in the nasopharynx, make the ears dull of hearing in the early attacks. This dulness does not pass off readily, but gets worse, and remains longer after each coryza. Finally, the hardness of hearing becomes permanent, either with or without tinnitus aurium, and in one or in both ears. Usually both ears are affected in chronic hypertrophic catarrh, but not to the same extent.

The impaired permeability of the Eustachian tube and the imperfect ventilation of the tympanic cavity, induced by catarrhal swelling in the mucous membrane of the nasopharynx and Eustachian tube, brings about

a diminished aëration of the drum cavity. The air in this cavity not being renewed with normal frequency, or not at all, as in some cases of profound swelling of the mucous membrane, the air locked in the drum cavity is soon absorbed and a quasi vacuum formed. The external air now forces the membrana tympani inward, the ossicles are carried with it, and tinnitus aurium, deafness, and vertigo are caused.

Vertigo, more or less pronounced, may occur in both acute and chronic naso-aural catarrh. It is generally worse, however, in the latter than in the acute condition. It is due to pressure upon the endolymph in the vestibule and other parts of the labyrinth, and thence upon the cerebro-spinal fluid. This pressure is exerted by the forcing inward of the stapes in the oval window, by the retracted membrana tympani as already stated, and also by the direct pressure of the swollen mucous membrane of the drum cavity, upon the membrane of the round window. By the force arising from these sources the endolymph is compressed and the terminal filaments of the auditory nerve, especially those portions in the ampullæ of the semicircular canals, are compressed. By this means the so-called vertiginous centre of the brain is irritated, and the patient experiences vertigo, with reeling and vomiting, and, in some cases, syncope. The latter, however, is rarely observed, and then only after intense and prolonged nausea. One of the guiding points in the differential diagnosis between aural vertigo and vertigo from cerebral disease, is the retention of consciousness in aural vertigo, notwithstanding many epileptiform accompaniments.

Treatment.—Having shown that disease of the nares and nasopharynx is the original cause of most aural disease, treatment must necessarily be directed to these parts. A word must also be said here about the prevention of disease in the nares and ears, as well as concerning the diet and general hygiene in colds in the head and ears. Cold water must not be allowed to enter the external ear of any one with a tendency to aural inflammation, and snuffing water into the nares, for purposes of cleansing or hardening the tissues and keeping off colds, must also be prohibited. If cold water enters the external ear, myringitis and even otitis media may be the result in any one, whether predisposed especially to catarrh or not. Water snuffed into the nares can be drawn easily into the Eustachian tube and the middle ear, and thus otitis media acuta, with intense suffering, induced. After any form of bathing the head, the hair and scalp should be dried as thoroughly as possible. After such ablution, draughts at all seasons of the year, and even going soon into the open air in the winter-time, should be avoided. If in spite of all precautions, coryza is contracted and the nasopharynx and the ears become affected, the first care should be to protect the body by housing, and the treatment may be briefly defined as diaphoretic and antiphlogistic. The diet should be plain and light. There is no more fallacious aphorism in popular medicine than "to feed a cold." Highly seasoned food and spirituous drinks quickly congest the fauces, nasopharynx, and ears, and, therefore, must be avoided. Smoking by the mouth, but not by the nares, may be indulged in if desired. Parenthetically, it may be stated that the practice of smoking through the nose is very likely to induce, in anyone, nasal catarrh and aural disease. In winter time, or in cool weather at any point in the calendar, it will be safest for the patient to remain in the same room, with a uniform temperature of not less than 70° F. At other seasons this matter must be decided by convenience and the patient's feeling.

The patient's mind must be disabused of the idea, so widespread in the community, of "breaking the cold" with quinine. Next to the high-feeding fallacy, in the treatment of colds in the head, comes the quinine treatment, largely carried on by patients themselves. Upon the slightest intimation of the onset of an acute rhinitis or "a cold," they prescribe for themselves and their friends ten grains or even twenty grains of quinine at a dose. This congests the auditory canal and the membrana tympani, as revealed by inspection, and tends to congest the head generally, and, of course, the patient is not only made more uncomfortable, but he runs the risk of inducing by his rash therapeutics a profound congestion, and a permanent lesion in his cochlea and auditory nerve.

The recent experiments of Kirchner, Schilling, and Schwabach, with quinine and salicylate of soda, show that large doses of these drugs may produce destructive changes in the labyrinth and auditory nerve contained therein. The lesion has been shown by post-mortem examination of the ear of cats to consist in a copious extravasation of white and red blood-corpuscles throughout the cochlea and other parts of the labyrinth. Hence, caution is necessary in administering this drug where congestion about the head and ears is already established.

Quinine judiciously administered at the termination of the acute symptoms of a coryza will tend to overcome the debility which invariably attends this disease, but in the acute stages I do not hesitate to say it is contraindicated, unless in very small doses of four to six grains daily, to overcome an unusual prostration.

The sudorific and anodyne treatment can be best carried out by the use of Dover's powder, the bromides, hamamelis, gelsemium, and aconite. If patients will honestly submit to hygiene and treatment at the hands of an educated physician, their colds can generally be shortened and cured. If they will not submit to rational treatment, they, and not their physicians, are to blame. Dover's powder acts better in many cases when given in small doses during the day, rather than at night in one dose. Laudanum in doses of from five to seven drops, several times daily, will also control irritation and lead to its resolution in numerous cases of acute coryza. Benefit may be derived also from vapors of camphor and iodine, and fumes of benzoin. The patient should be cautioned against sneezing, or even blowing the nose forcibly, as both acts tend further to congest the nasopharynx and the Eustachian tubes.

The bromides may be given in small doses, five grains every hour, and two or three grains of chlorate of potash may also be given, as frequently, in the form of lozenges, to be slowly dissolved in the mouth. This treatment, carried out while the patient remains in his room, I have known greatly to curtail the acute stages of a coryza, and to give relief to the peculiar irritation in the mucous air tract, so hard to endure in this stage. It has seemed to me to act by producing free diuresis.

Hamamelis is best exhibited in the form of the dis-

tillate, ten to fifteen drops, three times daily. It is claimed by many to have an aborting power over the congestion in the nares, and, so far as my observation goes, it seems to merit its reputation. Gelsemium and aconite have their best effects in the more febrile and neuralgic forms of coryza, and hence are indicated in such instances. Tincture of gelsemium may be given in doses of five to fifteen grains, according to the age, and aconite in doses of one-tenth of a grain of the extract, every hour, until its effect is noticed.

I would venture to suggest that antipyrin in five grain doses is worthy of trial in the febrile stage of coryza, but a limited experience would prevent my urging it strongly.

The local treatment of the nares and fauces forms an important element in the management of these cases of naso-aural disease, because it is necessary to restore the normal calibre of the nares and Eustachian tubes. Syringing the nares, in all forms, is to be condemned as too irritating and, hence, liable to provoke further disease. Under this head is also to be placed the nasal douche; this may give relief, if properly used, but it is dangerous from the risk incurred by its use, of forcing fluids into the middle ear.[1] The local treatment should consist in sprays from the hand atomizer, and, in some cases, in applications made directly to the nares by a tuft of cotton, on the cotton-holder, under good illumination by the forehead mirror.

It is of the highest importance not to irritate the already excited mucous membrane of the nasopharynx. Its erectile nature and the relation the nasopharyngeal mucous membrane sustains to the Eustachian tube and middle ear, and the ready transmission of disease from the former to the latter must not be forgotten. It has been stated that the Eustachian tube opens at each act of swallowing, and some claim that it is opened at each respiration. The air which enters the tympanic cavity at such times maintains the equilibrium of the membrana and the ossicles. If such aëration of the tympanum stops for even a short time, the ear is quickly placed in the first stage of deafness. The object of the physician should be to prevent this, or, if it ensue, to restore the normal ventilation to the middle ear as soon as possible.

In infants and very young children we must be on the lookout for the effects of chronically stopped nares. For, undoubtedly, chronic aural catarrh and consequent deaf-dumbness, originate in infants from neglect of close observation of, and attention to, the inflamed nasopharynx and middle ears. In many cases this might be prevented by prompt and simple treatment. Mouth-breathing, which tends to induce collapse of the Eustachian tube and membrana tympani, must be corrected. All these early conditions of closure of the Eustachian tube, and the consequent collapse of the membrana in children and adults, can be overcome by some form of aërial inflation of the tympana.

The simplest for all cases and the most efficient for children is Politzer's inflation or some of its modifications, by means of the hand-bag or air-douche as it is sometimes called. In adults the Eustachian catheter can be employed if only one ear is affected, and if it be desired not to inflate the well ear, or if the air-douche fail. Politzer's inflation of the tympana consists in forcing air from a specially arranged air-bag, held in the hand, into the nasopharynx through the patient's nose at the moment of swallowing, for at such a time the nasopharynx is shut off from the fauces, and the Eustachian tubes are drawn open by the elevation of the velum. It can be performed by means of a piece of rubber tubing. In order to insure swallowing at the proper moment, the patient is told to swallow a little water previously taken into his mouth. The same object can be effected in many cases by the simple act of phonation of the broad sound of *a*, or by simply puffing out the cheeks, according to the suggestion of Dr. Holt, of Portland, Maine. If little children cry, the operation is thereby aided by the elevation of their palates. The use of the Eustachian catheter is a matter of too much importance to be described in a short time. None but the specialist is liable to be called upon to use it often, if at all.

Successful inflation of the tympana is a most important and valuable acquirement for the physician, and of great assistance to the patient, for, by this means earache can often be promptly stopped, dulness of hearing overcome, and an attack of extravasation and inflammation in the drum cavity warded off. If vertigo is present, especially in the acute forms of otitis and rhinitis, it can often be entirely relieved by a thorough inflation of the tympana, since by this means the equilibrium of air on each side of the membrane is restored, and the pressure of the foot-plate of the stapes upon the endolymph and arachnoidal fluid is taken off.

The local treatment of the nares in acute and chronic rhinitis is best attained by the use of sprays thrown by the hand atomizer. Thus, in the acute forms, sprays of fluid cosmoline, and of the distillate of witch-hazel, one part to three or four of water, may be employed. In the more chronic or subacute forms, Dobell's solution may be sprayed into the nares, and this followed by spray of fluid cosmoline. The fauces may be touched with a weak solution of tannin and glycerine, or some of the weaker preparations of the Rhus glabrum, or common sumach. I must speak most positively against the use of nitrate of silver in chronic hypertrophic catarrh of the nose and throat. I shall not endeavor to mark out a line of treatment for the chronic forms of rhinitis, when connected with aural disease, as in this stage the general practitioner will often find that he lacks time to cope with them.

In the acute stage great comfort is given to the patient by insufflations of the compound bismuth powder, *e. g.*:

℞.—Morph. sulphat.	. . . .	gr. x.
Sodii bicarb.	. . . .	gr. xv.
Bismuthi subcarb.		
Acaciæ pulv.	. . . .	āā ʒij.

M. and powder most finely.

This may be used in small pinches several times daily in adults, during the most acute stages of coryza. Of course, care must be exercised in its use, both in adults and children, on account of the risk of poisoning by the

[1] If, however, solutions of salt in water are thus thrown into the nares and nasopharynx, they should be what are known as "blood solutions"—*i. e.*, fifty-six grains to the pint in strength. If not, endosmosis or exosmosis is excited in the nares, according to the less or greater strength of the solution.

morphia in it. Solutions of cocaine (four to six per cent.) seem to allay the nasal irritation in severe cases. This may be instilled into the nares, or painted over the turbinated bones with a hair pencil.

If earache is present, these applications to the nares, together with *inflation of the tympana, if done soon*, are often sufficient to allay the suffering by reëstablishing the normal ventilation of the nares, Eustachian tubes, and the middle ears. If this procedure be insufficient for relief of the pain in the ear, and suppuration seem imminent, we have a choice of a number of methods. Dry heat is always better in the treatment of earache than moist heat, as the latter is too macerating and threatens the integrity of the drum. Hence poulticing the ear must be strictly prohibited. Warm water irrigation may be tried, and will often give relief; but it is inconvenient. I have succeeded in allaying earache, due to coryza, by applying in front of the auricle a flat, four-ounce bottle filled with very hot water. Most instillations are dangerous from their liability to irritate the canal and membrana, and hence make matters worse. Laudanum and warm water or warm alcohol are among the most likely to give relief.

If the pain be not very severe, a 10 to 20 per cent. solution of cocaine or 5 per cent. solution of brucia applied in the auditory canal may control it. If the suffering grows intense and a suppurative process threatens, leeching may be resorted to—*i. e.*, one to three large European leeches may be placed *in front* of the tragus or under the lobule, but never in the meatus or in the auditory canal.

It is also claimed by many that $\frac{1}{20}$ to $\frac{1}{10}$ gr. of sulphide of calcium three or four times daily, will control the tendency to suppurate, and therefore, when combined with aconite in small doses ($\frac{1}{10}$ gr. of the extract) three or four times daily, given at the outset of the disorder, will tend to allay the pain of tympanic inflammation. In some cases I have thought I derived aid from this much talked-of anti-suppurative medicine when I have been able to give it at the beginning of the symptoms.

If, notwithstanding all the efforts of the surgeon to mitigate the ear pain and prevent suppuration, the latter ensue, and rupture of the membrana tympani be imminent, paracentesis of the latter should be performed. This will usually relieve the pain at once, give vent to he accumulated muco-pus, and prevent an extensive or an entire sloughing of the membrane. It is to be performed only under perfect illumination of the auditory canal and membrana by the forehead mirror and by an experienced hand. The instrument must be a slender shaft with a delicate needle-like blade, and the most prominent point on the membrane must be chosen for the puncture. This will usually be the lower and posterior quadrant.

After the paracentesis of the membrana there is an escape of pus or muco-pus from the tympanic cavity. The pain now ceases, either immediately or in the course of a few hours, according to the less or greater severity of the inflammation in the mucous membrane of the drum. The discharge usually continues, and would become chronic were it not carefully treated by astringents and antiseptics. In order not to favor suppuration, aqueous solutions are not as valuable as powders. Hence, the dry treatment—*i. e.*, clearing the ear by mopping with absorbent cotton and the insufflation of finely powdered boric acid, is preferable to the moist treatment of otorrhœa by syringing and the instillation of astringent drops. The treatment, furthermore, whatever it be, is more efficacious if carried out by the surgeon rather than by the patient. Hence, the latter may be obliged at first to visit his doctor daily, if his physician cannot go to him. Prompt treatment, therefore, of a "gathering" in the ear will be just as satisfactory as prompt treatment of an abscess elsewhere, and as by the latter procedure sloughing and burrowing are prevented, so in the ear total loss of the membrana and ossicles, with impairment of hearing and an offensive otorrhœa, are obviated by prompt recognition of the nature of the aural disease and a rational treatment of the same.

ORIGINAL ARTICLES.

THE PHYSIOLOGICAL ACTION OF THE HEAVY OIL OF WINE.

BY HOBART AMORY HARE, M.D. (UNIV. OF PA.),
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THE heavy oil of wine, as one of the component parts of Hoffmann's anodyne, occupies a prominent but an unrecognized place in our list of remedies.

According to the U. S. Dispensatory, this agent is formed by the distillation of alcohol with a large excess of sulphuric acid. The product of the distillation is generally in two layers, one of which contains the heavy oil of wine, while the other layer consists of sulphurous acid. For the purpose of separating any ether which may be in the oily layer, it is exposed to the air for twenty-four hours, when it is washed with water, thereby removing any sulphurous acid which may contaminate it, and after these two processes have been accomplished the oil is ready for the market. Notwithstanding the fact that Hoffmann's anodyne is so frequently used, and has for so long a time occupied a prominent place in the household, and a useful one in the profession, curiously enough, nothing seems to have been done toward increasing our knowledge of its composition or of its physiological effects. Its formation is generally accounted for in the following manner:

When sulphuric acid and alcohol are added together, one of the results of their union is sulphovinic acid ($C_2H_5HSO_4$); but if the sulphuric acid be in great excess the sulphovinic acid is partially decomposed, forming the heavy oil of wine.[1] The mixture now consists of ethyl-sulphate, $(C_2H_5)_2SO_4$; ethyl-sulphite, $(C_2H_5)_2SO_3$; and ethyline, C_2H_4. Two forms of this ethyline are known, viz., etherin and etherol, and the mixture of these two separate forms of ethyline alone, forms the *light oil of wine*.

The same doubt seems connected with the specific gravity of the heavy oil. Sadtler believes 1.133 to be the most correct estimation of its specific gravity yet made.

[1] Dr. Squibb believes the heavy oil of wine to be a sulphovinate of a hydrocarbon radical.

At the suggestion of Dr. H. C. Wood, I performed the following experiments in order to discover what part was played by the oil when administered with alcohol and ether in Hoffmann's anodyne. Of course, under the latter circumstances the action of the oil is entirely subservient to and masked by the more rapidly acting and more diffusible stimulants; but the results of the following investigations were, at least, marked enough to show that the drug before us occupies no mean position in the anodyne mixture. Starting with the object of seeing in what manner the circulation is influenced, and beginning with the heart of the frog, the following results arose from my investigations:

When the isolated heart of the frog is placed in the pure oil the rapidity of its movements is increased very distinctly (about ten beats more a minute) for some moments; following this stage of stimulation comes a condition of exhaustion or depression, during which the cardiac movements are imperfectly performed, with a constantly increasing feebleness, and finally the viscus stops in diastolic collapse.

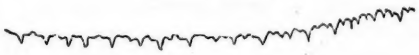
Seven other experiments with the isolated heart now followed, a weaker solution of the oil being used in each experiment, and it became evident that the duration of the period of stimulation was in inverse ratio to the size of the dose, so that the seventh heart had its increased rapidity of movement continued for a longer period than any of its predecessors. The action of the drug when dropped in varying strengths upon the heart when lying in its pericardial sac was identical with its effects upon the isolated viscus, so far as the eye could discern. Unfortunately, any study as to the relative propelling power of the heart when under the influence of the oil was impossible, owing to the fact that no frogs of sufficient size were obtainable; the hearts I was obliged to use being too small for use in any of the so-called frog manometers. It is evident, however, that in small and ordinary quantities the heavy oil of wine is a cardiac stimulant, while overwhelming doses are needed to produce cardiac depression.

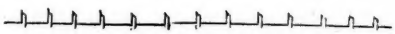
DOG; WEIGHT 20 POUNDS; CURARIZED; ARTIFICIAL RESPIRATION.

Time.	Drug.	Pressure.	Pulse.	
12.20	.....	134	186	
12.20.10	2 min.	134	192	Injection begun.
12.20.20	.....	146	192	Injection ended.
12.20.30	.....	144	192	
12.20.40	.....	144–150	186	
12.20.50	.....	130–150	240	
12.22	.....	164	186	
12.22.10	4 min.	150–180	192	Injection begun.
12.22.20	.....	180	180	
12.22.30	.....	170–160	198	Injection ended.
12.22.40	.....	160	194	

The experiments made on the higher animals—the dog, for example—showed that the drug affects the mammalian circulatory system in much the same manner as it does that of the frog. It will be seen from the accompanying table and tracings that small doses of the oil (2 to 7 minims) increase pulse-rate, force, and pressure, while larger doses (1 to 2 c. c.) decrease pressure to a considerable extent; exceedingly large doses seem necessary to depress the heart. Indeed, the perfect vasomotor palsy resulting from large doses of the oil would seem to point to the conclusion that the heart stops rather because its vital centres do not receive a sufficient quantity of fluid for their maintenance, than to a direct depressing action of the drug on that viscus, for it has already been shown that overwhelming doses are necessary to depress the heart of the frog, and one of

TRACING No. 1.

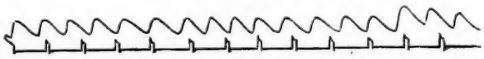




Showing rate and pressure in normal dog.

the subjoined tracings shows how much power remains in the heart even when the *arterial pressure* is not more than 5 mm. above the abscissa line.

TRACING No. 2.



Showing rate and fall of pressure produced by 10 c. c. of the oil injected into jugular. The increased height of the pulse wave over the normal is always present when the vaso-motor system is depressed and the heart is not.

A brief glance at the experiments so far performed shows that this oil produces on the circulation the following effects:

1st. Small doses increase arterial pressure.
2d. Large doses decrease arterial pressure.
3d. Small doses increase rate.
4th. Very large doses are required to diminish rate.
5th. Small doses increase force.
6th. Large doses do not decrease force.
7th. That it requires very large doses, indeed, materially to decrease force.

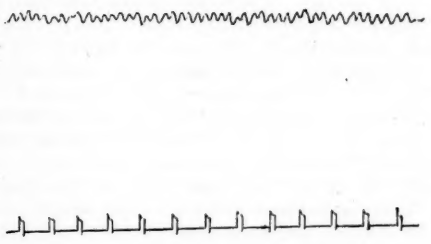
The questions now arising, limit themselves to the consideration and the elucidation of these results, and each one was examined in the above order and individually.

It was proved, by careful and repeated observation, that the rise in pressure following the administration

of from 2 to 7 minims of the oil was due in no way to a respiratory action of the drug, for in the curarized animal the rise was as great as in the dog, the respiratory functions of which were not interfered with, and there are, therefore, but three modes of explaining this increase of pressure. Either the vasomotor system is stimulated centrically or peripherally, or cardiac force is sufficiently increased to produce a general rise in pressure. As every one knows, this latter condition is scarcely ever met with in an unalloyed state, a vasomotor stimulation generally accompanying increased cardiac force.

Few drugs also produce peripheral vasomotor excitability, without affecting the higher vasomotor centres in the fourth ventricle. It was proved by two experiments in which the spinal cord of a dog was severed high up in the cervical region, thereby causing a complete cutting off of any impulses from the centres, that this rise was due to a centric action of the remedy, probably aided by the cardiac stimulation, for under these circumstances no rise of pressure took place when the drug was given. The decrease in arterial pressure produced by large doses of the drug evidently depends, in great part, on a peripheral as well as a centric action of the oil, for in the dog in which the cord was intact the fall was not as great as in the animal the cord of which was divided. It would, therefore, seem probable that the drug in large doses affects the centres to but a slight extent, for if its dominant action under such circumstances was centric, we should expect to find as great a degree of fall when the cord was intact as when it was cut. The extreme difficulty surrounding all efforts to decide whether the peripheral vasomotor action of a drug is alone the cause of a fall of pressure, prevents our absolute decision on this point. While we cannot, therefore, state that the heavy oil of wine paralyzes the centres or periphery, singly and individually, we can rest assured that it does, in large doses, depress the peripheral ends of the vasomotor nerves. (See tracings numbers 3 and 4.)

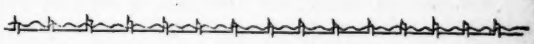
TRACING NO. 3.



Cord cut: normal tracing.

In regard to the increase in pulse-rate following small and moderate sized doses of the oil, we find that it is probably due to a direct cardiac stimulation, rather than to any depressing action on the inhibitory nerves. This is pointed to by the fact that the rapidity of movement in the frog's heart when isolated was increased by the drug, and also by the fact that section of these inhibitory nerves invariably caused an increase in rate of so decided a character, that any previous vagal depression could hardly be present. Further than this, other experiments showed that when section of the vagi and cord was

TRACING NO. 4.



Cord cut: showing complete vasomotor palsy produced by 4½ c. c. of the oil.

synchronously made, thus leaving the heart free from all nervous influences of a centric character, the same increase in rate took place as when the cardiac nervous system was intact.

The decrease in pulse-rate produced by enormous doses of the oil is also due to a direct effect upon the heart itself, for it occurred both when the vagi were cut and when they were whole; the same condition also obtained when the cord was cut. Section of the vagus during the period of decrease in rate caused but a momentary and transient quickening.

When small doses have increased cardiac force, the force is increased by a direct action on the heart muscle or its ganglia; or, in other words, the stimulation which increases rate also increases force. This is rendered the more likely by the fact that cardiac

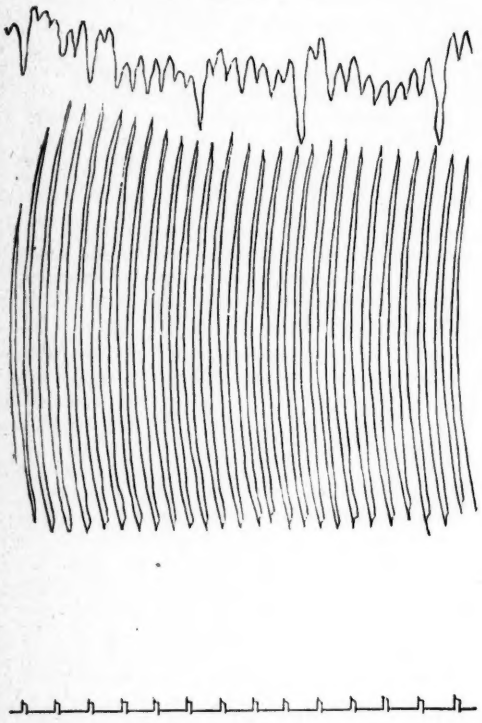
TRACING NO. 5.

Normal tracing.

force remains almost as long as cardiac rate is increased, or at least until the rapid rate is no longer one of power, but of weakness.

Very large doses cause decrease in heart power by a direct action on the heart muscle, and by producing such a general vasomotor palsy that the heart cannot obtain a sufficient quantity of blood to enable it to drive out through the hungry bloodvessels a fair-sized pulse-wave. The heavy oil of wine in the dose of 3 c. c. to a very strong and powerful dog weighing 25 pounds, increased the force and rapidity of his respirations very markedly, as may be seen from tracings numbers 5 and 6. Violent spasmodic efforts at forcible breathing came on after the administration of a

TRACING NO. 6.



Showing increased respiratory rate after 3 c. c. of the oil.

second dose, but as these severe respiratory changes did not occur in other dogs under like circumstances, I believe them to be due to the plugging up of the minute bloodvessels near the respiratory centres by minute oily emboli.

On the nervous system the drug seems to exert but little influence, for even when given in enormous doses to frogs no nervous phenomena were developed, and careful electrical studies on the nerves and muscles when in contact with the oil failed to show any signs of action of the drug.

While the writer was unable to demonstrate any nervous effects produced by the oil of wine, he does not wish it thought that he denies that such influence exists, although he believes it to be very slight indeed. From his experiments it seems probable that

First. The belief in heavy oil of wine being the quieting agent in Hoffmann's anodyne, is fallacious.

Second. That the calmative effects of this mixture depend largely on the ether, rather than on the oil.

Third. It would seem probable that in Hoffmann's anodyne we possess an agent in which there are linked together three drugs of undoubted power, each one of which successively substitutes the other, stimulating the system in the order here named, viz., ether, alcohol, and the heavy oil of wine.

On animal temperature, as ascertained by the thermometer in the rectum, no effect is produced, even when the arterial pressure is very low. That large doses of the heavy oil of wine are in no way possessed of toxic effects, was proved by the fact that 30 c. c. of the drug given by the mouth to a small dog, weighing 12 pounds, failed to produce any apparent symptoms, except, perhaps, to stimulate him slightly. While the odor of the oil is penetrating, it is by no means disagreeable, and it possesses but little taste other than that of the presence of an oily substance.

AN UNUSUAL GUNSHOT WOUND OF THE THORAX.

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A FEW weeks ago I was called upon to make an autopsy in which death had resulted from a gunshot wound received under the following circumstances:

Two lads were struggling for the possession of a pistol, one having hold of the barrel of the weapon, the other the handle. The boy holding the barrel gave a sudden jerk, pulling the pistol toward his breast, and the weapon was accidentally fired just at the moment it touched his body. The pistol was an old-fashioned muzzle-loading weapon, with a barrel six inches long, and a calibre of forty-eight. It was loaded with a heavy charge of powder and a slight paper wad. The body was that of a slightly built boy of fourteen, fairly well nourished, and with a rather thin skin.

There was a large gaping wound of the thorax extending from one and a half inches below and to the median line of one nipple to a corresponding point on the other side. The wound was sharp, clean-cut, and had all the appearances of an incised wound, except in the middle, just over the sternum, where both the upper and lower edges were lacerated to a slight extent. There were no powder marks on the skin, the wound was blackened at the point of laceration, and only slightly so elsewhere. The skin was torn loose from its connection over a space six inches in diameter, its internal surface and the torn muscle and fascia blackened and burned with powder.

The sternum was extensively comminuted; there was a transverse fracture across the lower third of the gladiolus, and numerous other longitudinal fractures extending from this. The bone looked as if it had been laid flat and struck with a heavy hammer. The cartilages of the fourth and fifth ribs on either side were torn from their connections with the bone. At the point of the transverse fracture there was an irregular hole in the bone half an inch in diameter. On the internal surface the periosteum was torn from the bone in large shreds and blackened. The anterior surface of the pericardium was torn away, and a large

ragged opening made into the heart. The right auricle and ventricle were laid open, and there was an opening in the interauricular septum half an inch in diameter. The edges of the heart wound were blackened, and in the wound were found small irregular bits of bone, some of which had penetrated into the left auricle. Both pleural cavities were opened, and contained a considerable amount of blood. There was no injury to the lungs or to the posterior pericardium. The diaphragm was intact. There were several ruptures in the left lobe of the liver, two on its upper surface, and five on the lower surface opposite to those on the upper. All of these ruptures extended from one-quarter to a half inch into the parenchyma of the organ. A very slight quantity of blood was found in the abdominal cavity. All of the organs were pale and exsanguine.

When he was shot the boy had on a heavy woollen shirt, in which a ragged orifice with burned edges was found. When shot he uttered a loud cry, made a few steps forward, and fell dead.

In this case it is probable that the great laceration of the skin, and parts beneath, was due to the expansion of the gases of combustion beneath the skin. Most books on medical jurisprudence speak of the fissuring of the skin from pointed projectiles, and from expansion of gas when the weapon is held close to the body. I have not found a case, however, in which the fissure of the skin was so extensive, straight, and sharp, as in this case. The ruptures in the liver show how great the force of concussion must have been. The laceration of the heart was due, in great part, to the pieces of bone which were forced in, but the tearing effect of the explosion evidently made itself felt here also.

REMARKS ON THE VALUE OF ANTIPYRIN IN PUERPERAL FEVER.[1]

BY JOHN BLAKE WHITE, M.D.,
VISITING PHYSICIAN, CHARITY HOSPITAL, NEW YORK.

SERIOUS structural changes are to be dreaded when continued pyrexia obtains in any form of disease, but in none is the danger greater than in puerperal fever. The wet pack, cold sponging, and cold coil, in local inflammatory conditions, are, indeed, valuable means for reducing temperature and allaying inflammation, but they possess features of objection, because of the danger of disturbances to which they often subject the patient.

The effects produced upon the system are, nevertheless, the same as when a high temperature is gradually reduced by internal medication.

The reduction of temperature should be effected gradually, however, if satisfactory and safe results are to follow. A review of the following cases of puerperal fever treated with antipyrin will demonstrate its value in relieving the hyperpyrexia present, and thus contributing to their successful termination.

CASE I.—Mrs. B., aged twenty-eight, primipara, confined May 2, 1885. Labor natural, convalescence advanced satisfactorily until the fifth day, when the patient had a severe chill, followed by fever. Pulse 135, temperature 105°. Severe abdominal pain was complained of, and the patient assumed the prone position with thighs flexed. On examination the abdomen was found tympanitic, the most careful manual investigation producing great pain. The face was flushed and anxious, and the patient complained of severe headache and mental confusion. There was a partial arrest of the lochia and some fetor. The milk secretion was checked; carbolized vaginal douches were ordered. Warm turpentine applications made frequently to the abdomen. Opium to relieve pain prescribed, and fifteen grains of antipyrin given every three hours until three doses were taken. This treatment produced strikingly satisfactory effects, and in due time the patient made a good recovery. As soon as the pyrexia was overcome with the antipyrin, the lochial discharge was fully reestablished, the milk returned, and no unpleasant result whatever followed.

CASE II.—Mrs. D., aged twenty-eight, primipara, confined February 23, 1885. Labor tedious, followed by *inertia uteri* during the second stage. Labor was terminated with the forceps. Patient progressed favorably until the fourth day, when she was seized with a severe chill, followed by high fever and peritonitis. This condition modified both the milk secretion and the lochial discharge, the latter emitting fetor. The same general treatment was carried out as in the preceding case. Antipyrin was given in the same dose at regular intervals of three hours until the fever was controlled, and in due time a most satisfactory convalescence was the result.

CASE III.—Mrs. J., aged twenty-four, multipara, confined March 29, 1885. Labor natural. Convalescence progressed until the sixth day, when late at night I was hastily summoned and found the patient delirious with a temperature of 105.2° and pulse proportionately rapid, skin hot and dry. Abdomen tympanitic, lochia arrested and milk suppressed.

Opium was given to relieve pain, hot turpentine stupes applied to the abdomen, carbolized douches ordered, and antipyrin gr. xv administered every two hours until three doses were taken. The temperature declined under the treatment. For several days the fever returned with the other threatening symptoms, which were as readily combated with the antipyrin as at first. As soon as the fever declined in each instance the lochia returned, and the secretion of milk was reestablished, after which convalescence progressed satisfactorily.

CASE IV.—A case of measles complicating puerperal fever. Mrs. W., aged twenty-four, primipara, confined June 4, 1885. Labor natural. Convalescence progressed until the fourth day, when severe abdominal pain was complained of, preceded by a rigor. When the patient was seen the abdomen was hot, intumescent, and tympanitic; the patient's position was symptomatic, reclining on the back with thighs flexed and body bent forward. The expression was anxious, face flushed, respiration painful, headache intense. She complained of severe sacro-lumbar pain and retention of urine. The temperature was 104.5° and the pulse 140. Respirations were not counted, but were rapid and shallow in character. The lochial discharge was suppressed and the secretion of milk also arrested. Hot turpentine stupes were directed to be frequently applied to the abdomen until some relief from pain was experienced. Opium was given in appropriate doses. Carbolized vaginal douches were ordered and antipyrin administered in gr. xv doses every two hours until three powders were taken. My next visit was made soon after the third powder was administered, and the temperature was found reduced to 102°, with every other symptom less urgent.

Fifth day: Temp. 101°; pulse 100. The patient's condition was in every respect more satisfactory. She still

[1] Read before the Manhattan Medical and Surgical Society.

experienced some pelvic pains, and the opium was accordingly continued at longer intervals. The lochia were partially restored and the milk secretion was renewed. The antipyrin was given in the same dose once every five hours and vaginal douches continued.

The patient was favorably progressing up to the eighth day, when I was hastily summoned and found symptoms of peritonitis again pronounced. The temperature ranged as high as 105°, and the pulse was correspondingly rapid. I suspected her guilty of imprudence, and soon learned that the patient had been persuaded by a friend to get up and exert herself in order to "encourage her strength."

Although I had cautioned against such imprudence, when my back was turned the patient had yielded to other advice with the result stated. This second seizure very nearly proved fatal. All of the dangerous symptoms returned to an alarming degree. The same treatment already detailed was carried out and antipyrin again administered as before. On the following (9th day) the temperature was 99.5°, the pulse 100, and every condition of the patient improved. On the 10th day the bowels were moved by an enema and convalescence seemed assured. I would have had, in all probability, no further trouble with the case but for the following unfortunate occurrence.

The patient's sister came from Philadelphia to be present during the confinement, and brought her little son, who was taken ill at this juncture with a pretty severe attack of measles, requiring his mother's constant attention. My patient would not consent to her sister's returning home while the child was so ill, and I, of course, advised against his being exposed to the danger of so long a journey in that condition. Although isolation was as studiously practised as possible, the contagion nevertheless found its way to the sick-room, and the puerperal woman was taken ill with the measles. The temperature increased to 105°, and when the eruption appeared it manifested itself profusely over the face, trunk, and extremities. The usual catarrhal symptoms were pronounced, and the paroxysms of coughing caused severe abdominal and thoracic pains. The pulse was quite rapid, face very much flushed, and the patient's general condition seemed so critical that I became very anxious of the result.

Antipyrin was again administered as before with striking effect. The temperature and pulse readily declined. The next morning the patient's condition appeared less grave. Antipyrin, however, was continued night and morning in doses of gr. xv throughout the pyretic period, and appeared to exert a wonderful antipyretic influence. The infant was also taken ill with the measles, but made as good a recovery as the mother.

I have had the same satisfactory results follow after using this drug in other cases of like character, but these instances have been selected for report as characteristic cases, and are sufficient to prove the value of antipyrin in puerperal fever, as well as to place it among the most safe and useful antipyretic remedies in all fevers.

I have had no reason to think that the remedy exerts any direct influence upon the uterus by which the lochial discharge is restored when suppressed, but it has seemed that this good result was effected secondarily through the reduction of the high temperature which is always present in these cases. It appears to me that the pyrexia in puerperal fever checks involution, and an arrest of the lochia follows. The discharge becomes reëstablished upon the reduction of temperature brought about, I think, by the sedative effect of antipyrin upon the circulation, and its effect upon the vasomotor system, dilates the capillaries and modifies or removes local congestion.

I admit the difficulty of determining as yet how the antipyrin acts, but it cannot be doubted that it exercises a bradycrote influence upon the circulatory system. Dujardin-Beaumetz thinks the toxic effect of antipyrin the same as that of resorcine or carbolic acid, though less manifest than in the two latter drugs. He says that it produces, in overdoses, tetanic and paralytic symptoms, analogous to those caused by strychnine, and declares that it cannot be doubted that the drug acts upon the cerebro-spinal axis and probably lowers temperature by effecting a modifying influence on the nervous heat centres. Or, does the remedy enter the blood and arrest fermentative processes excited therein by a specific fever germ, and thus control high temperatures?

Antipyrin is a product of destructive coal tar distillation, and is chemically known as *dimethyloxychinine*, approaching quinine in composition, but possessing a far less bitter taste and more positive antipyretic effects. The preparations of tar which have been heretofore used medicinally, are well known to exercise a controlling effect upon fermentation existing along the digestive tract. Dangerous collapse has been attributed to the drug, but I have witnessed no ill effects from its use, though I have frequently prescribed it in many fever cases. From the fact, however, that overpowering collapse has been said to threaten when it is employed with digitalis, I am inclined to believe that its action is also that of a cardiac and circulatory sedative. It does certainly reduce the force and frequency of the heart's action, which may explain the condition of collapse supervening when these remedies have been combined in prescription. As it does not seem to be cumulative in its effects, no accident, so far as I know, has followed the use of antipyrin prescribed alone and in appropriate doses at regular intervals, as already stated.

My experience with the remedy, in both hospital and private practice, in the treatment of many fever cases, has taught me that it should not be combined with any remedy which acts as a sedative upon the circulatory organs. Doses of fifteen grains or twenty grains, repeated in one, two, or three hours, *pro re nata*, appear to be the only safe way in which to prescribe it. I have seldom found it necessary to give more than three or four doses of the amount cited, and this repeated at such stated intervals is found to reduce the temperature effectually and sometimes permanently from 105° to 100° or less. If fever should recur, this dose continued once or twice daily until convalescence is advanced, will prove a useful adjunct to other treatment.

Since the preparation of this paper, I have read with much interest an article by Dr. A. A. Smith,[1] in which he bears testimony to the value of antipyrin, "as the most useful and safest antipyretic yet discovered if used in not too large doses, and if in connection with its use cardiac stimulants be given when there is any suspicion of cardiac enfeeblement."

The only cases in which I have found it necessary

[1] Medical Record, Feb. 27, 1886, p. 238.

to combine any stimulant with antipyrin, have been such as would have demanded stimulation under ordinary circumstances, from the debility consequent on the affection itself, and not because of any depressing influence incident to the employment of the drug.

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MEDICAL PROGRESS.

BACTERIOTHERAPY OF PHTHISIS PULMONALIS.—DR. BALLAGI has carefully followed the bacteriotherapeutic details advised by Cantani in eight cases of advanced phthisis with moderate fever; many bacilli in the sputa. During the inhalations the sputa were daily examined for bacilli and bacterium termo. The following results were noted:

1. In none of the eight patients was a diminution of the bacilli demonstrable.

2. Fever, cough, and other symptoms were as troublesome during the four or five weeks in which the inhalations were given as before.

3. No arrest or regression of the phthisical process was at any time demonstrable by physical examination.

4. In one patient diarrhœa occurred, which ceased only upon stopping the inhalations.

5. After ten to fourteen days the patients strongly objected to the inhalations, and only four held out beyond four or five weeks. The nauseating smell and taste of the (freshly prepared) solution of bacterium termo decreased appetite, and the weight of patients also decreased somewhat.—*Centralb. f. d. gesammte Therapie*, May, 1886.

THE BRONCHIAL SECRETION AS AN ABSORBENT.—In January last, DR. B. W. RICHARDSON, while suffering from a bronchial cold, accompanied with rather free secretion from the bronchial surface, discovered on the morning of the 18th that the secretion had a peculiar and fetid odor. He detected this first in the pocket handkerchief he was using, and surmised at first that the odor might by some accident have come from it, although it was quite clean. He therefore obtained another handkerchief which certainly had no odor, but the result was the same whenever the bronchial secretion came in contact with it. Fresh cotton-wool receiving the secretion had also the bad odor imparted to it. He would have felt anxious but for the circumstance that he recognized the odor of some decomposing animal matter which he had detected on the table of the laboratory on the preceding day when at work there. He sought, therefore, for the offending cause, and found it in a Leyden jar, which contained a portion of the brain of a sheep that had undergone decomposition, and that had not been removed. He closed the jar, took a carriage drive into the suburbs of London, indulged in a good brisk walk, and returning home, found the expectoration free of all fetor. The next morning, the expectoration being still free of fetor, he reopened the jar, and breathing near it for a short time, found that the secretion was rapidly reinfected, and that it was just as easy to communicate the odor to the expectoration as it was to the moist hand, to moistened cotton-wool, or to a watery solution of albumen.

This little observation seems to be of moment as explaining the mode in which some infections are directly communicated. When we consider the large area of the bronchial surface, and its position in relation to the blood, we can easily see how the whole volume of the blood may be poisoned from prolonged inhalation of air charged with putrid matter. The observation is also useful in showing how quickly fresh air, even near a large city, removes the danger. It may be that in some diseases affecting the nasal organs and upper part of the throat, the great benefit which so often accrues from even a few days' change into pure air at the seaside, may be due to the deodorizing effects of the air on nasal and bronchial secretions in a state of partial decomposition.—*The Asclepiad*, April 25, 1886.

CLIMACTERIC DIABETES IN WOMEN.—In an article with this title LAWSON TAIT says: Roughly speaking, the conclusions that I have arrived at concerning this affection are that in the great majority of cases of eczema of the vulva at the climacteric period, the disease is due to the presence of sugar in the urine. I have not yet come across a case of this kind in which, having examined for sugar, I have not found it. The disease seems to begin at or near the arrest of the menstrual functions, and to extend over a period of several years, then terminating in all probability by nature's own process. The sufferings of the patient are very much diminished, and probably the duration of the disease is shortened, by the liberal administration of opium, whilst the local trouble is best mitigated by ointments containing such substances as will arrest the process of fermentative change in sugar. So far, the best substance that I have found for the purpose is the old-fashioned hepar sulphuris.—*The Practitioner*, June, 1886.

A STUDY OF THE SENILE TESTICLE.—In an inaugural thesis thus entitled, M. H. G. ARTHAND presents the following conclusions:

1. At about the age of fifty years the human testicle is subject to a gradual regression which induces atrophy.

2. This atrophy is characterized by a marked pericanalicular sclerosis and by the disappearance of the epithelial element.

3. As a result of the sclerosis there appear atrophy of the seminiferous tubules, varicose dilatation of the ducts of the epididyma, and later, the formation of cystic cavities.

4. The sclerosis and its accessory phenomena may be regarded as the result of vascular lesions and of the insufficient nutrition of the seminal glands in advanced age.—*Annales des Maladies des Organes Génito-Urinaires*, May, 1886.

NATURE AND CAUSE OF INTERNAL ROTATION.—DR. D. BERRY HART thus formulates a law governing the internal rotation of the fœtus:

1. Whatever part of the fœtal head or trunk first strikes a lateral half or lateral part of the sacral segment is rotated internally to the front, and in the direction opposite to the lateral half or lateral part of the segment so acting.

2. No part of the fœtus is ever rotated directly into the hollow of the sacrum. The passage of the occiput into the hollow of the sacrum in its so-called posterior rotation is exactly equivalent to the passage of the sinciput into the hollow of the sacrum in normal rotation,

and should be excluded from descriptive terminology, as the latter is.

3. The direction of rotation may be predicted in any case by noting what part first strikes a lateral half of the sacral segment.

This view of rotation gives, in my opinion, a more coherent idea of all the rotations than those based on the shape of the head or pelvis only. I do not deny the influence of the shape of the internal surface of the pelvis, but I deny that it alone can determine rotation.

It seems to me, also, that we here see an explanation of the pelvic inclination, Roederer obliquity, Solayres obliquity, and general shape of head and body of fœtus.

The pelvic inclination, as we term it, gives us, by its slope, a short anterior pelvic wall, and may be looked on as due to a slicing away, as it were, of part of the anterior pelvic wall. The kidney shape of the brim, such that the head there does not fully occupy it, and lies with the Solayres' obliquity, is necessary for the distention of the bladder during pregnancy; while the shape of the occiput, chin, neck, and sternum allows of Roederer's obliquity in head cases, or extension in face cases, so as to make a part, either occiput or chin, usually lead during labor. The short anterior pelvic wall and oblique and deep position of a part of the fœtus (occiput, chin, breech) bring necessarily the fœtal part lying anteriorly at the brim early within the reach of a lateral portion of the sacral segment—*i. e.*, tend to cause its early rotation.—*Edinburgh Medical Journal*, May, 1886.

NITRITE OF AMYL IN WHOOPING-COUGH.—At a recent meeting of the Philadelphia Neurological Society, DR. MORRIS LEWIS stated that he had exhibited nitrite of amyl with advantage in a case of whooping-cough. The drug was diluted with three times its bulk of ether, and the finger, wetted with the mixture, held before the child's nostrils at the first respiratory effort. The frequency of the paroxysms was not lessened, but their severity and the attending exhaustion were greatly diminished. In the discussion DR. H. A. HARE stated that he had once checked a paroxysm of whooping-cough by this method, and that it did not return for twelve hours, although prior to this the attacks had been of hourly recurrence.

RESEARCHES ON THE BIOLOGICAL ACTION OF SILVER.—CURCI (*La Medicina Contemp.*, March, 1886) has experimented with a double hyposulphite of sodium and silver, this salt being very soluble, not coagulating albumen, non-irritant, and readily absorbable by the subcutaneous connective tissue. In frogs, silver paralyzes the excitomotor nerve apparatus of the heart, and in this way produces slowing and progressive weakening of the systole and arrest in diastole. It does not paralyze the muscular fibre. In mammals, silver acts on the bulbar vasomotor centre, at first stimulating it and therefore increasing the arterial pressure, then paralyzing it and lowering the pressure. It causes the peripheral arterial vessels to contract, but has no action on the veins. It acts on the nerves and excitomotor ganglia of the heart, gradually paralyzing them, causing the heart to become flaccid, the pulse weaker and smaller, and finally paralyzing it. The paralysis of the central vasomotor nervous system, and particularly of the pulmonary vasomotor fibres, aided, perhaps, by the cardiac paralysis, is the cause of the congestion and œdema of the lungs. Therapeutically, silver, owing to its power of diminishing and abolishing the excitability of the sensory, cerebral, and spinal nerve centres, is rationally indicated in epilepsy, locomotor ataxy, and other diseases of the great nervous centres, characterized by increased excitability. From its action on the respiratory centre, it is useful in nervous or idiopathic asthma. Since it also diminishes and abolishes the excitability of the ganglia and excitomotor nerves of the heart, it is useful in some cases of angina pectoris. It probably also calms the morbid excitability of the aortic and cardiac plexuses of the sympathetic. Curci recommends that the internal use of the nitrate should be abandoned, since in contact with the mucous membrane it is rapidly altered, and may cause the dark discoloration known as argyria, and this without its true action on the nervous system ever being obtained. He recommends instead the double hyposulphite of sodium and silver, which is very soluble in water, is not caustic, does not coagulate the albuminoids, is very diffusible and promptly absorbed by the mucous membrane and subcutaneous connective tissue. Its taste is sweet and slightly nauseous; it should be given fasting or hypodermatically. The dose by the mouth is from five to twenty centigrammes, daily, or one to five centigrammes hypodermatically. Its action on the nervous system is surely and quickly obtained, and the danger of argyria is avoided.—*London Medical Record*, May 15, 1886.

PRELIMINARY NOTE ON THE MICROBE OF RABIES.—G. F. DOWDESWELL writes as follows in the *Lancet* for June 12, 1886:

In view of the great interest now taken in this subject in consequence of the brilliant investigations of Pasteur, I think it desirable to take an early opportunity of stating that I have found the microbe which appears closely to constitute the virus of this disease. It is a micrococcus, not very minute, and of the usual form. It stains, however, with some difficulty; and this accounts for its having hitherto escaped observation. In the cases of dogs which I have as yet examined, its principal seat is evidently the central canal of the spinal column and spinal oblongata; thence it pervades the other tissues of the central nervous system, occurring (sometimes in vast masses) around the walls of the bloodvessels, and in some cases within the vessels amongst the red blood-corpuscles. In the cortex of the hemispheres I have found it, but in very small numbers, and, so far, only in the perivascular and pericellular lymph spaces. In the cerebellum I have not found it at all, neither have I as yet succeeded in finding it in the salivary glands. I shall shortly publish the methods by which it may be stained with certainty. I must, however, state that it does not stain by hæmatoxylin, either with or without a mordant, as asserted by Fol.[1] I have repeated his methods carefully. Neither does it occur within the nerve fibres, as he states; and, lastly, it is fully three times the dimensions which he gives. I may add that it does not occur in the same situation, treated by the same methods, in normal animals. In the one case of

[1] Comptes Rendus, Dec. 14, 1885, vol. cl. p. 1276.

a rabid dog, which I had examined to control my previous observations, the tissues were placed in alcohol so shortly after death as to preclude the possibility of the occurrence of septic organisms. In addition to which, all saprophytes, so far as yet observed, stain very readily with the usual aniline dyes, which this microbe does not. I must point out, in justice to the genius of Pasteur, that these observations on the occurrence of the microbe go far to confirm his statement of the seat of the virus; it may further afford a means of diagnosis in any doubtful case.

TREATMENT OF CILIARY ECZEMA.—HÉBRA commends the following ointment, as applied morning and evening to the free edges of the eyelids in ciliary eczema:

Lead plaster,	
Olive oil	āā 10 parts.
Balsam of Peru	1 part.

Massoin, who cites the prescription, states that in the same affection advantageous use may be made of a one per cent. solution of benzoic acid, with which the eyes are to be frequently washed. The vehicle advised is plantain water.—*Revue de Thérapeutique*, April 15, 1886.

THE FLUORIDES OF AMMONIA AND IRON.—DR. JOHN LUCAS, of Bombay, has employed the fluoride of ammonia in the treatment of hypertrophy of the spleen.

The drug appears to have antipyretic and antiperiodic properties, as proved in cases of ague. Nausea was produced at first, but afterward large doses could be borne. The appetite, after a time, improves under its use. By giving the drug after meals its nauseant and purgative actions are greatly lessened. "It certainly appears to possess the merit of excelling any other method of treatment of hypertrophied spleen with which we are acquainted." Dr. Lucas began with five-minim doses, but in future would be disposed to give twenty, or even thirty, minims well diluted. The fluoride of iron would, perhaps, be preferable to the ammonia salt, on account of its hæmatinic properties.—*The Lancet*, May 22, 1886.

DIPHTHERIA NOT A SEWER-GAS DISEASE.—DR. ERWIN F. SMITH, in a paper on the "Influence of Sewerage Water-supply on the Death-rate in Cities" (Report of Michigan State Board of Health, 1885), makes the following statements with regard to diphtheria and sewerage.

1. Diphtheria is as frequent in the country as in the city—*i. e.*, in non-sewered as in sewered districts.

2. Diphtheria has been more frequent and fatal in certain rural districts than in any city whatsoever.

3. Diphtheria is not more frequent or fatal in sewered cities than in unsewered ones.

4. Of two given cities, equally well- or ill-sewered, diphtheria, during a long series of years, may be widely prevalent in one and rare in the other.

5. Certain sewered cities have never suffered seriously from diphtheria, while others have been afflicted very much worse in recent years (*i. e.*, since the houses have been protected from sewer air), than formerly, when, with the same sewers, but much less perfect plumbing, flushing, and ventilation, the sewer-air found its way into a majority of the houses.

6. When an epidemic of diphtheria appears in a city, the sewered and unsewered portions generally suffer alike.

7. No relation of interdependence can be traced between diphtheria and the sanitary state of a city, such, for example, as enables us to predict with almost absolute certainty, the typhoid fever mortality of a city from a knowledge of its sanitary condition, or conversely, the sanitary condition from its typhoid mortality.

8. The annual mortality from diphtheria fluctuates greatly, and this, too, in cities where the sanitary conditions are very nearly constant.

9. Diphtheria is a disease of cold weather, being most active when putrefactive decomposition in sewers is presumably least so.

10. Diphtheria is a contagious disease, transmissible from person to person and place to place, like smallpox and scarlet fever.

11. The closing of schools and other places of public gathering checks an epidemic; and the isolation of the sick from the well, with the subsequent proper disinfection of the sick-room and its contents, extinguishes it.

12. The data relied upon to prove a connection between sewerage and diphtheria, either cover too short a period to be trustworthy, or are drawn from single cities having incomplete and defective sewerage.—*The Medical Age*, May 10, 1886.

DURATION OF VITALITY IN CHOLERA BACILLI.—GUTTMANN and NEUMANN send from the Bacteriological Institute of the Moabit Hospital of Berlin, the following brief but important communication:

They have kept cultures of cholera bacilli in agar-agar for two hundred and eighteen days, and similar cultures in the beef-extract, peptone, and gelatine mixture for two hundred and nineteen days. At the expiration of these periods respectively, the bacilli were found capable of transplantation and continued development, and also produced their characteristic effects upon inoculation in guinea-pigs.—*Centralb. f. klin. Med.*, May 1, 1886.

TREATMENT OF VESICAL CALCULI.—DR. N. P. DANDRIDGE, in a paper read before the Ohio State Medical Society, in June, 1886, thus formulates his experience in the treatment of stone.

Every case demands

1. An examination of the urethra, to determine its calibre and its tolerance of instruments.

2. A careful estimate of the size and composition of the stone.

3. A careful examination of the urine, to determine the character of the stone and the presence of Bright's disease or diabetes.

The present aspect of the treatment of vesical calculi justifies, in his opinion, the following conclusions:

1. In children, all cases should be submitted to lateral lithotomy, except in the very rare cases where the size of the stone demands the high operation.

2. In adult cases rapid lithotrity should be the rule, and is capable of dealing with about nine-tenths of all the cases met with.

3. Stones of unusual size, from one and one-half ounces upward, should be submitted to suprapubic lithotomy.

4. Stones formed round a foreign body can be safely removed by median lithotomy, even when of large size.

5. Stricture, simple and uncomplicated, should first be relieved by dilatation or internal urethrotomy, and the stone subsequently crushed.

6. Stricture, when indurated, or complicated by fistula or marked cystitis, should be submitted to a perineal lithotomy, and, by preference, the median operation should be chosen.

7. In hypertrophy of the prostate, the question of operation is to be largely determined by the necessity for drainage of the bladder.

8. The same can be said of the influence of cystitis in deciding upon the choice of operation.

9. In case of uncertain diagnosis, the median operation is indicated in order to permit of digital exploration of the bladder cavity.—*The Cincinnati Lancet-Clinic*, June 5, 1886.

TREATMENT OF SYNCOPE IN ADOLESCENTS.—DR. CLEMENT DUKES, Physician to Rugby School, writes as follows to the *Lancet* of May 8, 1886:

An adolescent was sent to me with the statement that he had nearly fainted on three different days, but he did not become insensible. He came with the request that I would ascertain the cause of his faintness. Cases of the kind have happened to me under similar circumstances so many times, and their relief at first had been so unsatisfactory and difficult, that my experience may be of value to others, for I have established a fact. I have already incidentally referred to this fact in a former communication, but not so clearly or with such certainty as I wish to do now.

When such cases come under my investigation, I immediately and invariably examine the urine, instead of the heart, and generally find it loaded with albumen. It is, therefore, highly important that the urine should be examined and the kidneys treated by nitroglycerine, rather than the heart auscultated and tonics prescribed, "because of the patient's extreme debility and feeble action of his heart, etc.," as is usually the case. I have sometimes found, on examination of the heart and pulse, that, besides the marked albuminuria, there exists a heaving heart and somewhat rigid arteries—conditions incidental, I believe, in adolescents, more to the "age of puberty" than to the state of the kidneys. But often, as in a case at present under my care, the heart is really feeble, and the pulse totally devoid of the signs of a kidney pulse; and had it not now been my invariable rule to examine the urine in preference to the heart, I should doubtless have prescribed a tonic regimen, to the detriment of my patient. The treatment for the two conditions is so opposite that I do not hesitate thus to call special attention to it: a feeble heart and pulse being relieved by tonics, good food, and stimulants; while congested kidneys are alone cured by a hot bath, nitroglycerine, an aperient, and milk only as a diet. With such treatment this syncope of adolescents is usually cured in a few hours, and with daily prudence for some time there will be no return of syncope or albumen, and the patient will express himself as vigorous again.

COLD AS A CAUSE OF DISEASE.—HANKEL thus describes an interesting series of experiments, the results of which give some explanation of the intense visceral congestions which may be induced by exposure to cold of a relatively slight cutaneous area:

While prosecuting some investigations, in the years 1871–72, upon the temperature of the skin, I made an effort to study the influence which would be exerted upon the temperature of the skin by marked cooling off of one foot, and this with the view of clearing up the question of taking cold. For the purpose named, I put one foot into a basin of cold water. Immediately thereupon the temperature of the skin of the breast sank to a marked degree, so much so, indeed, that the needle of the thermo-electric pile I was using at the time ceased to record it. I was, therefore, not in position to determine the temperature of the skin of the breast, even approximately.

By evening I began to sneeze, and got so severe a cold that I was not willing to repeat the experiment a second time, and so did not mention it in my previous report.

It appears to me, as a result of this experience, that, by rapidly lowering the temperature of one foot, the temperature of the entire skin immediately sinks; and, as this can occur only as the blood is driven out of the vessels of the skin, it must follow that the blood is forced into the internal organs generally, or, what is more unfavorable still, into some particular ones, leading to an inflammation, or, as in my case, to a severe cold.

Whether this lowering of the temperature of the entire skin, by the cooling off of one foot, invariably results, or occurs when a cold is coming on, not having repeated the experiment, I cannot decide.—*The American Practitioner and News*, May 29, 1886.

ANTISEPTIC SOLUTION FOR THE HYGIENE OF THE MOUTH AND TEETH.—DR. MÜLLER, professor in the Dental Institute of Berlin, recommends for the purpose indicated, the following formulæ:

I.—Bichloride of mercury	gr. iij.
Thymol	gtt. iij.
Distilled water	O j.

Use as a mouth-wash for thirty seconds.

II.—Thymol	gtt. iv.
Benzoic acid	gr. xlv.
Tincture of eucalyptus	ʃʒ iij.
Distilled water	O jss.

Use the same as that of formula I.—*Journal de Médecine de Paris*, May 9, 1886.

TREATMENT OF SYPHILITIC ALOPECIA.—MAURIAC commends, as a local application in alopecia of syphilitic origin, a pomade thus constituted:

Turpeth mineral,	
Quinine sulphate	āā 1 part.
Lard	60 parts.

In treating the rapid exfoliation of dandruff which often accompanies this disorder, he directs the application of the following lotion:

Borax	1 part.
Sodium carbonate	2 parts.
Distilled water	600 "

—*L'Union Médicale*, May 27, 1886.

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CAUSES WHICH AFFECT THE PRODUCTION OF THE SEXES.

NOT long ago one of the most distinguished of French obstetricians remarked, referring to the pathology of puerperal eclampsia, "it is a bottle of ink." Most of those who have closely studied eclampsia will readily admit the truth of this statement. It may be added that like obscurity reigns over the subject of the production of the sexes, notwithstanding that the subject has engaged the attention of physicians and of philosophers from Hippocrates and Aristotle to the present time. Causes which were not causes have been alleged, and speculations which were mere artificial trees, having no life, and, of course, bearing no fruit, have abounded. A part of the work of modern science has been to destroy the errors of the past, and also to gather up the truths or the apparent truths it had collected.

How meagre our present knowledge upon the subject is may be judged by the fact that Stirling, in a note to his translation of the *Physiology* of Landois, quotes Hofacker and Sadler, whose investigations are half a century old, and on their authority asserts that if the husband is younger than the wife there are as many boys as girls; if the same age, the number of boys slightly predominates; but if he be older, then this predominance is greater. Nevertheless, BERTILLON, in his article upon "Natalité," in the *Dictionnaire Encyclopédique des Sciences Médicales*, has proved that these statements are not constantly true. Stirling also refers to the fact that in insects the food has a most important influence; but Pflüger, from his observation upon frogs, seems to conclude that it is without influence upon other forms of animal life, a conclusion which we believe is in the highest degree improbable.

The last number of the *Archiv für Gynäkologie* contains a contribution by CAMILLO FÜRST, upon the preponderance of male births from conception at the time of post-menstrual anæmia, or the period which immediately follows the menstrual flow. The article embraces many very interesting facts and probabilities, to some of which we will call attention. In the first part of this article, Fürst remarks that the two questions, when and how the final determination of the male and of the female sex is effected in man, animals, and plants, have hitherto been but unsatisfactorily answered by theories deduced from known facts. He further observes that the great interest manifested in this and other biological questions has found expression in the invention of theories and hypotheses which are frequently without any premises, or which, when really based on the result of investigations, lead to numberless contradictions, because, while investigating one factor, the influence of others has received little or no attention.

The first question, as it relates to man, is, Does this determination of sex occur before, during, or after impregnation? Certainly it must occur before we can distinguish the sexes anatomically. Statistics indicate that certain conditions before impregnation, as for example, the age of the procreator, his state as to nutrition and health acting upon the ovule, or upon the spermatozoid, result in the production of one sex rather than of the other. The question as to the influence of the time of impregnation in the determination of sex is one which can be more easily discussed than answered, and in our knowledge of this we have advanced little further than Aristotle. Further, various facts render it probable that certain conditions, such as nutrition, have an influence after impregnation in determining the sex. He thinks it also highly probable that the determination of sex occurs before, during, and after the impregnation of the ovum.

DÜSING, in his work "Die Regulirung der Geschlechtsverhältnisse bei der Vermachung der Menschen, Thiere, und Pflanzen," published in 1884, regards the greater preponderance of stillborn males over stillborn females as indicating the probable influence of nutrition in determining sex, for there is relatively a greater deficiency in nutritive material in the case of males than of females, since the former grow more rapidly, having an average greater weight. Another fact which favors this conclusion is that the embryos of almost all animals are at first hermaphroditic. The longer this hermaphroditic state remains, the greater the opportunity of changing the tendency toward the development of one or of the other sex. In the larvæ of the bee when the female genital system has begun to be developed, if there be insufficient food supplied, the development is arrested, and no queen bees are produced, but workers only,

and if the food be still further diminished those which would have been females become drones. Among higher animals, however, this early hermaphrodism seems a useless inheritance. The same principle is seen in the human race in the more frequent occurrence of hermaphrodism, in consequence of the late determination of sex, in multiple pregnancies; when more than one ovule is impregnated there is a competition between the two, a struggle for existence, and, hence, one is liable to suffer in development from deficiency of nutritive material.

Mayrhofer endeavored to refute this theory, which is an old one, by pointing to the fact that monstrosities are of the same sex; he believed that the sex was determined in the impregnation. Fürst answers him by saying that he forgets that a certain interval elapses between the time when the sex is determined after impregnation and the time when the first difference in the quantity of food appears. The chances for one or for the other sex, when this is determined after impregnation, may change in the same ovule before the final determination is made, and the last influence will have so much the greater power the less is that of previous influences.

In regard to the causes themselves, a variety must be assumed, and sex is the result of these combined influences. According to Mayrhofer, each parent has a tendency to produce his or her sex; this view Fürst regards as contradicted by statistical facts. In many forms of inferior animal existences, unimpregnated eggs always produce males. "If the wings of the queen bee are imperfect, so that copulation cannot occur while she is flying, or if she has used up her supply of semen, or her receptaculum be injured, or the spermatozoids are killed by frost, she lays unimpregnated eggs all of which are developed into drones." In view of all the knowledge we now have, the tendency of each sex is to produce the opposite sex. Fürst regards Düsing's law in reference to the regulation of sex in all animals as agreeing with this opinion. According to that law, all animals have inherited the peculiar power of being able to produce a preponderance of the sex which is deficient at a given time, that is, to supply a want. Now in delayed procreation in the human race—*e.g.*, in old primiparæ, or in multiparæ who give birth at long intervals, there is a preponderance of male births, and thus an actual deficiency of male births is made good. So, too, there is a preponderance of male births in primiparæ. There is a less preponderance of male births in unmarried women who become mothers, because impregnation usually occurs at an early age. After a war in which many males have been killed, there is a preponderance of male births.

Indirect causes are efficient in determining sex. Thus, when the constitution has become enfeebled, the sex of the individual will be produced. We can recall from our own observation some striking illustrations of the tendency of one sex to reproduce the opposite sex, and also of the truth of the statement that the enfeeblement of the individual causes the production of his own sex; one of each we will give. A., who was almost a Hercules in development, married a frail, delicate girl, who was scarcely half his size. Within six years she had three girls, but she became stronger and more robust, while her husband lost somewhat his physical vigor, and then a boy was born. B. married a healthy wife, he himself being in fair health; the first child, as is the more frequent in primiparæ, was a boy, and the next a girl; then the husband's health began to fail, and after a weary struggle for life during six years, he died of phthisis, his wife in the meanwhile having had three boys.

In addition to the nutrition, the vigor and the age of the individual are factors in determining the sex of the offspring. Each one at the time of greatest sexual vigor is least apt to continue his or her sex, and most apt to produce the opposite. In regard to the first of these propositions, Düsing's statistics are quite significant. He has recorded 861,640 births of colts; and found the average proportion of males to females 98.31 to 100. But if a stallion cover fifty or more mares the proportion of male colts to female varies from 100.7–101.19 to 100. If 20 to 54 mares were covered, it fell to 96, 60–97, 92 to 100. These statistics show that, obviously, the greater the vigor of the stallion the less probability of "getting" male colts, while that probability increased with the decrease of his vigor.

In reference to the second proposition, it would seem to sustain the Hofacker-Sadler law; but this law has in reality less influence than the absolute, not the relative, age of each. "As each declines from the standard of perfect sexual strength, the greater the liability of the production of his or her sex." Berner, studying the statistics of more than 200,000 births in Norway, has recently reached results which are in direct opposition to the Hofacker-Sadler law.

Fürst mentions an interesting fact in regard to animals in their native state, to wit, that they have the power of adapting the number produced to the environments; thus, when food is abundant there is a preponderance of female births, thereby promoting greater reproduction; but if food is scarce the number that can be reproduced is lessened by a greater number of male births.

In the human race statistics have shown that there is a lessened excess of male births in the wealthy classes and in cities, as compared with the greater preponderance in the working classes and in the

country, and that there is a transient increase in preponderance during a time of famine, depression, and war. Climate and seasons also have an influence. It has been observed that there is an increase in the number of male births before the extermination of a race.

All these considerations, with some others that are omitted from this analysis, lead Fürst to believe that there is an increase in the preponderance of male births when conception occurs in the early part of the period of post-menstrual anæmia. There is then deficient nutrition of the freshly impregnated ovule because of the uterine anæmia; and if defective nutrition can, at a later period of embryonic life, determine sex, how much more influential is such anæmia now! According to Düsing, the sexual development is influenced for three months by the nutrition of the mother. "It does not, therefore, seem that the chances for sex are very variable or equal, but rather that before any hermaphrodism can be demonstrated in the embryo, in some way in the dark recesses of germ-life the determination of sex has been made. Consequently, it is not a matter of indifference for the newly impregnated ovule, whether it reaches the uterus during the period of post-menstrual anæmia, or at a later period."

DRAINAGE OR PRESSURE.

THE importance of drainage in the dressing of surgical wounds is not only well recognized at the present time, but perhaps even exaggerated. Observation of the behavior of many operation wounds will show that drainage by tubes, or by means of strands of horsehair, brings to the surface so small a quantity of discharge that this step seems to be unnecessary. In the case of loss of substance by the removal of tumors, or by amputations, if it be possible to obliterate the resulting cavity or depression, drainage is quite unnecessary. This is plausible in theory, and it is found to be true in experience. It is now a good many years since Gamgee began strenuously to advocate the principles of dry and infrequent dressings, and those who have adopted these principles can bear witness to the fact that they have not been disappointed in the results. It is also probable that no small share in the success of dressings with various powders, such as iodoform, naphthalin, and bismuth, is to be attributed to their physical properties.

MAYDL recently reported in the *Centralblatt für Chirurgie*, for April 10, 1886, the results of close suture without drainage, in the clinic of Prof. Albert. Within a year the latter treated, among others, thirty-two amputation wounds in this way, and lost but one patient, who died of secondary hemorrhage. In several of his cases of amputation of the leg it appears that Albert pushed the idea of compression a little too far; for gangrene ensued in three out of eleven cases. In operations upon tendons, bones, and joints, his experience indicates unmistakably the utility of drainage.

It appears from a review of what has been accomplished without drainage, that the success of this method depends upon the possibility of approximating all fresh surfaces and maintaining them in apposition, without the use of so much pressure as shall seriously interfere with the circulation of the part. Where this can be done drainage is not called for. But, as there is always uncertainty on this point, and as it does not appear that any reasonable method of securing drainage has material disadvantages, it is not wise to discard it for close suturing which, when it succeeds, offers but little better results.

CHILDREN'S AID SOCIETIES.

THERE is no object more deserving of sympathy and kindly aid than that which affords to the helpless little ones of our crowded cities an opportunity of enjoying, for a brief period, the benefits of a sojourn in the country. A change of air and surroundings, even though for a day, is of the greatest advantage to the health, and certainly contributes to the enjoyment of children, who, through stress of poverty, are denied fresh air, wholesome food, and the ordinary comforts of life. Under such circumstances, the hot season is especially trying to the weak and sickly, and unless promptly rescued they speedily succumb to the unfavorable influences by which they are surrounded. This broad field for benevolent work has not been neglected. The Children's Country Week, the Sanitarium in Philadelphia and in Baltimore, the St. John's Guild in New York, and kindred societies in other cities, are accomplishing wonderful results, but their labors are necessarily restricted by limited resources.

As auxiliaries to the local sanitary authority in the employment of measures for the preservation and improvement of the public health these aid societies are of undoubted utility. But the city government cannot contribute to their support, though such assistance would promote public economy. These organizations must be wholly sustained by the generous offerings of the public, and to it the appeal is once more made.

The physician has unusual advantages for directing attention to these noble enterprises. No one knows better than he does the needs of the children of our poor at this season of the year, and his opportunities for enlisting the sympathy and generous aid of our wealthy citizens should not be suffered to slip away unimproved.

THE MEDICAL DEPARTMENT OF SHAW UNIVERSITY.

SOME two years ago, soon after the Medical Department of Shaw University had been founded, we

commented in these columns on the fact that it was the first medical school in this country that had made a four years' course compulsory, and commended the school on the wisdom of its action.

We are glad to learn that the result has justified what we then asserted, and moreover has shown the entire fairness of the State Medical Board of North Carolina. This spring the first class of six young colored men graduated in medicine at Shaw University, and three of them decided to practise in their native State. After an examination by the Board all three of them were admitted to practice, while of the white candidates we regret to say that one-fourth failed to pass—a sorry commentary on their knowledge.

REVIEWS.

INSOMNIA, AND OTHER DISORDERS OF SLEEP. By HENRY M. LYMAN, A.M., M.D., Professor of Physiology and of Diseases of the Nervous System, in Rush Medical College; Professor of Theory and Practice of Medicine in the Woman's Medical College; and Physician to the Presbyterian Hospital, Chicago, Ill. Pp. 239. W. T. Keener: Chicago, 1885.

THE author of this interesting little book is evidently no mere routine practitioner, but a gentleman of culture who has read and thought much respecting the mysterious "brother of death," which Sir Thomas Browne declares takes away the third part of our lives. After considering the nature and causes of sleep, in regard to the latter of which Dr. Lyman accepts the theory of Pflüger, a chapter is devoted to the various influences which produce insomnia, arranged for study in two groups,—viz., first, those inducing wakefulness by irritation of peripheral portions of the sensory apparatus; and, second, those morbid states of the central nervous organs which disturb the normal recurrence of sleep. In the section on remedies for insomnia, little that is novel is presented except the remarks upon paraldehyde, which, in spite of its disagreeable taste and smell, is recommended as preferable to chloral hydrate in cases where there is no disease of the stomach, where the wakefulness is not dependent upon pain, and where it is associated with cerebral hyperæmia. An important advantage claimed for this hypnotic, is the absence of a period of excitement, such as follows the administration of chloral and immediately precedes the advent of refreshing slumber. The latter half of the volume is chiefly occupied with the subjects of dreams, somnambulism, and hypnotism, rendering it of more interest to the student of physiology than to the medical practitioner.

SOCIETY PROCEEDINGS.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, June 14, 1886.

DR. C. D. PALMER read a paper on

THE EARLY DIAGNOSIS OF CANCER OF THE CERVIX UTERI.

It is stated on good authority, he said, that cancer is three times more frequent in women than in men, and that one-third to one-half of the total number of cases in women involve the uterus. It is a disease three times more frequent in the uterus than in any other organ of the body.

A comparison of the past and the present favors the opinion that cancer is occurring with increasing frequency. Without doubt this increase is largely apparent, the result very naturally of improved methods of diagnosis and more frequent examinations of the female pelvic organs. But there is reason to believe that the increase is not seeming only, but real; a result of the growing changes in the habits of living among modern people, for cancer is a disease which statistics tend to show follows in the wake of civilization. Its frequency and fatality among women seem frightful when it is estimated that three per cent. or more of their total mortality from all causes is by its ravages, and that it explains more deaths than any other pelvic disease peculiar to the sex.

The strong conviction, based upon clinical experience—a conviction growing stronger—that cancer is primarily a local disease, and that the system is implicated secondarily, has impelled surgeons to extirpate the diseased tissue as thoroughly as possible, consistent with life and the integrity of the surrounding parts. It has founded the practice that to be successful extirpation must be early. A very large proportion of the cases of uterine cancer are necessarily fatal, sooner or later, when first seen—fatal because the surrounding parts are so involved that entire extirpation is impracticable and impossible; fatal because the day of grace has been sinned away. If this fact is not clearly appreciated before any operative procedure, it becomes plain during it.

While these facts, which few, perhaps, will contradict, have no direct bearing on the subject of this paper, nevertheless they possess that degree of vital importance which ought to stimulate everyone concerned in gynecological practice in efforts to recognize as early as possible the true character of uterine cancer and its semblances.

The diseases of a malignant type which affect the uterus are carcinoma, epithelioma, and sarcoma. The first two, at least primarily, almost always involve the cervix uteri; the last, with the same uniformity, the body of the uterus. Schröder says that less than two per cent. of uterine cancers affect the body of the organ first. Most authors make a still greater difference. Courty says 1 in 429 cases. The corroding ulcer described by the Drs. Clarke, of London, affecting the cervix, is exceedingly rare, and is undoubtedly a form of epithelial cancer. Epithelial cancer, then, may be of the vegetating or ulcerative variety. The clinical differences between any of the above varieties of cancer, including cancroid (so-called), may, at the beginning, be easy of recognition, but as the disease advances, the superficial parts being more or less destroyed and the deep structures involved, a differentiation is not only difficult but may be impossible.

The benign affections of the cervix which at some time may be confounded with the malignant, are chronic inflammation, so called; a diffuse interstitial cervical metritis; a condition commencing with hyperæmia merging into hyperplasia, leaving the structures enlarged, irregular, and indurated. Associated

with these conditions, very often independent of them, we find endometrial inflammation with its results, erosions, granular and cystic degenerations, ectropion, the surfaces being the seat of various discharges of mucus, pus, or blood. It is true that syphilitic ulcerations and condylomatous formations, also fibroid infiltrations and tumors, may be mistaken for malignant disease, but their existence is not only less frequent than the aforementioned benign affections, but an error of this kind is certainly less likely to be committed.

Nothing can be easier than the diagnosis of most of the benign diseases of the cervix uteri. Nothing can be plainer than the determination of the presence of advanced cancer of this part of the uterus, by far the most common site. So characteristic is the ulceration, so deep the destruction and excavation of the tissues, so involved by its peculiar infiltration are the surrounding parts, so pronounced the symptoms, both general and local, that touch alone is ordinarily all sufficient. A combination of symptoms and local signs are present which no other disease fully simulates. By this time anything in the way of treatment is only palliative, and hence, while a correct diagnosis is important enough, practically life does not hang upon the decision. As it is of vital importance that we recognize a malignant disease of any type early, if we would do any radical or permanent good, and as mistakes are most generally made in the earlier stages of the disease, let us more fully consider this subject. Excluding from present consideration cancers of the uterine body, which are rare, for practical purposes we may divide the subject into two parts.

I. The form of cancer simulating or confounded with parenchymatous or fibrous benign diseases of the cervix.

II. The form of cancer mistaken for, simulating, or simulated by, endometrial diseases.

Exactly what anatomical structure which, in point of origin, undergoes the primary change in cancer is uncertain. Ruge and Vect say that the disease may originate in the connective tissue, in papillæ, glandular epithelium, and superficial epithelium. Probably the origin of carcinoma begins in a degeneration of the connective tissue cells, either under the mucous membrane of the vaginal face of the cervix or up within the cervical canal, while the epithelial growths or ulcerations first invade the superficial epithelium.

I. A carcinomatous infiltration arising within the connective tissue cells of the cervix, at once heightens the vascularity of the part, which in color looks reddish or bluish, produces nodulations more or less hard, and reduces the mobility of the superjacent mucous membrane—conditions which, when seen before characteristic ulceration has commenced, are nearly identical with changes brought about by a local hyperæmia, followed by a hyperplastic infiltration of the connective tissue. Should these changes of a commencing malignancy start in a cervix previously healthy, or so little diseased as to excite no special attention, they progress so insidiously—it may be slowly—that in all probability the patient will not call upon her physician until the second or ulcerative stage has advanced. Or should they commence in a cervix already diseased by chronic inflammation, one that is being inspected for treatment from time to time, they may even advance to a considerable degree before any special suspicion is excited.

The general health, either with a local condition of malignancy or innocence, may be good or bad (in incipient cancer not engrafted upon any local inflammatory state, it is frequently very good), while the local symptoms, pain, leucorrhœa, and menstrual aberration, are not unlike. Can a diagnosis now be made of the disease in its exact nature? In most instances, I think it can. The one thing needful is that a suspicion of malignancy be aroused; and if attention be directed to certain symptoms and signs, this suspicion as a rule may be dismissed or confirmed. In incipient malignancy, the redness arising from local congestion is more intense; if the epithelium is lost, the papillæ below are more prominent, and these bleed more easily upon touch; the circumscribed induration is more marked. The whole cervix may not be especially enlarged, is not tender to touch, and the whole uterus is mobile. The diagnostic test suggested by Spiegelberg, in 1871, (*a*) that the mucous membrane in a cancerous growth is firmly connected with the underlying induration and immovable over it, and not so in hyperplastic thickening and induration; and (*b*) that the hyperplastic induration under the pressure of compressed sponge in the cervical canal becomes regularly looser, softer, and thinner, the cancerous induration remains unaltered, hard, rigid, and cannot be stretched, is not as reliable as was at first supposed, even if practicable. But much valuable information can be gathered by carefully watching the developments of treatment; hence, it may be necessary to keep a patient under observation for a short time for diagnosis. It will be observed that, while all the local conditions, leucorrhœa, erosion, induration, etc., do improve under a well-directed local treatment, provided they are the offsprings of an inflammation, at the same time they do not at all, or but slightly—never permanently—change for the better, if malignant; but they manifest a special obstinacy to treatment—in fact, they progressively get worse. The leucorrhœa increases, the papillæ enlarge, and the erosion extends, the induration deepens, and the congestion becomes more intense. I think this is especially marked if the local treatment is of a caustic or irritating character.

Such developments should excite the gravest suspicions, notably in women of advanced years. If any doubts now remain, a small section of the indurated tissue should be excised and thoroughly examined under the microscope. Although there is no distinct cancer cell, a large aggregation of epithelial cells, with nuclei arranged within a fibrous stroma with alveolar spaces, is thought to be typical. I have great doubts whether microscopists by their examinations can, always, or in most cases, give us reliable opinions, without any other clinical evidences at hand; but with them, the microscope becomes strongly corroborative and confirmatory.

Whether chronic metritis proper—chronic interstitial metritis—has a tendency to be transformed into malignant disease, has been a matter of much disputation. Noeggerath, who ably considered this subject several years since, took the affirmative side of the question.

II. Under the second heading, the form of cancer which is confounded with endometrial or mucous benign diseases, is epithelioma.

In either class of diseases under consideration—paren-

chymatous or mucous—an error in diagnosis may be made in either direction, of course; the benign taken for cancerous, or *vice versa*. Early carcinoma of the cervix proper is, I think, often overlooked, the disease being interpreted more frequently as inflammatory, than otherwise. But not so with an endometrial growth: the disease now much more frequently being supposed to be malignant where it is innocent. In reference to this point, I can recall numerous instances in my own practice and that of others, where the diagnosis of malignancy has been made for the time being, and it is easy to understand how certain cases may be reported as having been cured by an operation of cervical amputation or excision, when no cancer whatever has been present.

The first, the great cause in the formation of epithelial growths of the cervix uteri, is laceration occurring during parturition. If this has not healed primarily, especially if bilateral, it leaves the cervical walls gaping, and, sooner or later, a progressive hyperplasia, papillary and follicular, increases the size of the cervix, creates erosion of the separated lips, which become covered with a mass of fungoid granulations. These fungoid granulations, an outcropping of a perverted nutrition, spring up in nature's efforts to repair a local injury. They may develop within a comparatively short period after the laceration, or many years later, even after the climacteric period. They are at first, and may always, probably, continue to remain innocent formations—benign papillomata or epitheliomata, so to speak, if not excessive.

On the other hand, however, with an uncertain degree of frequency, they may quickly develop into malignancy. More often this change comes later on, merging insensibly into degeneracy. The frequency and rapidity of this degeneration are determined, there is reason to believe, by certain constitutional states, not in themselves cancerous, but such as afford a fertile soil for this kind of growth. The fact that the transformation may be exceedingly slow, consuming years, is an important one. It proves that, because the laceration with its results has lasted a long time, we ought not to be thrown off our guard as to the supervention of what is much more than a mere possibility. For some time before, during, and even after the transformation, the local appearances may not be greatly unlike, hence the liability to an error in diagnosis. The whole uterus has almost its natural mobility, there is no noticeable parametritic infiltration, the body of the organ is not implicated; the entire disease is limited to the cervix, and this part presents the physical conditions, mushroom-like in shape, covered with masses of vegetating fungosities, or there is a well-defined excavation, a true ulcerative action.

The relation of erosion, eversion, and granular degeneration, arising from lacerations of the cervix, to the development of epithelioma, as cause and effect, was first pointed out by Briesbey, and has been repeatedly referred to by Ruge, Veit, Emmet, and others. The last-named authority says that he believes that nearly all, if not all, cases of epithelioma of the cervix have their exciting cause in a laceration. The fact that epithelial cancer is exceedingly rare in virgins, or in women who have never been pregnant; that the disease exists most frequently in women who have had children in number above the average; and that in almost every case, unless the disease is so far advanced as to have produced much destruction of tissue, the old line of laceration and cicatrization can be marked out by the finger, proves that the belief of this distinguished authority is so well founded as to end all controversy in this direction.

Unquestionably malignant, epitheliomatous degeneration is more likely to ensue in cases of cervical laceration in which the torn surfaces never cicatrize. But cicatrization, whether by nature or art, is not, by any means, a complete barrier. Cicatrization does not do away with the ill consequences of laceration, eversion, hyperplasia, and follicular degeneration; and from the deep layers of the squamous epithelium of the everted surfaces, or from the greatly increased glandular epithelium, a cancerous growth may spring up. Siredey and Daulos (quoted by Parvin) say that benign papillomata are more friable, bleed more easily, and are implanted upon a broader base than the malignant. But not only are these differences not pronounced, but they cannot be depended upon in diagnosis.

It is very probable that the microscope will not afford evidence for a positive conclusion until the disease is well advanced, but its use should always be brought into requisition.

Topical treatment, in the absence of the microscope, or before its employment, can always be found to be a very valuable guide for diagnostic purposes. The local application of such an emollient as boroglyceride, of such astringents as the glycerite of tannin, or alum, once in two or three days; the shaving off of fungoid granulations with the scissors, or their removal with a sharp curette, followed by the above medicaments, will almost invariably so wonderfully improve the condition of the parts, in from a few days to a few weeks, provided the disease is inflammatory and benign, as to put at rest all suspicions of malignancy. On the other hand, such treatment, it matters not how skilfully directed, can only be slightly, never progressively, beneficial, when the cancerous degeneration is fixed. In quite a number of cases, both in public and private practice, where large masses of benign granulations have sprouted up over deeply lacerated and everted cervices, presenting the physical aspect of malignant epithelioma, when the general health, in consequence of a profuse leucorrhœa and menorrhagia, was being undermined, and when doubts arose as to the real nature of the local difficulty, the treatment referred to has quickly settled the diagnosis by the results obtained.

We all know that epithelioma of the cervix uteri of the vegetating kind is the least malignant of all malignant growths; purely of local origin, localized for an indefinite period, possibly for years, disseminating itself through surrounding structures very slowly. Removed reasonably early, permanent relief is not only possible, but probable. And not only ought extirpation to be early and thorough in epithelioma, but the cause giving rise to, and conditions simulating and degenerating into the same, should receive proper surgical attention. Whilst the outlook is less favorable for a carcinoma proper, the same principles hold good. Suspicious cases should be subjected to the most rigid scrutiny, all diagnostic tests being applied. Doubts may still remain. But truly doubtful cases should come under the same class demanding operative treatment. If now and then

one is subjected to treatment not absolutely needed, a greater number will obtain a measure of relief, a prolongation of life, and an easier death.

ONTARIO MEDICAL ASSOCIATION.

Sixth Annual Meeting, held at Toronto, June 2 and 3, 1886.

(Specially reported for THE MEDICAL NEWS.)

THURSDAY, JUNE 3.—SECOND DAY.

DR. HENDERSON, of Kingston, read a paper on a

GLIOSARCOMA INVOLVING THE PITUITARY BODY,

and presented the specimen from a man under his care in the hospital at Kingston.

DR. F. R. ECCLES, of London, introduced

THE DISCUSSION ON PUERPERAL ALBUMINURIA.

He first dealt with the minute anatomy of the kidney, composition of the urine, and the method of its elimination, and pointed out that the present state of science does not enable us to explain the absence of albumin from the urine in health. He next referred to the physiological changes in the uterus, pelvic lymphatics, portal system, spleen, liver, etc., during gestation. These changes give rise to great increase in the effete matter in the blood; hence the greatly increased activity of the emunctories, especially the kidneys. The increased waste results in increased tension of the vascular system. He believed it is in this direction we would have to look for the cause of albuminuria.

By many the pressure of the uterine tumor has been assigned as a cause; but this explanation is insufficient, as ovarian and other tumors rarely cause albuminuria. The effect of gestation was next dealt with. The presence of albumen in the urine may continue without any disturbance; abortion may result and save the patient from worse consequences; it may result in eclampsia. The existence of renal disease before pregnancy renders the prognosis especially grave. The treatment was briefly reviewed. The disappearance of albuminuria after the death of the fœtus in utero and after delivery indicates the course to be pursued in severe cases. Whether to try to conduct the case to full term, taking the risk, or to terminate the gestation and avoid the risk, is often difficult to decide; it is, however, better to lose twelve children than one mother.

DR. A. H. WRIGHT, of Toronto, said it was well to sum up all the physiological changes in pregnancy, but they are physiological after all. To put them and albuminuria as cause and effect is manifestly improper. In the management of these cases we have to remember two things, viz., the blood is impoverished and poisoned. Therefore, tonics, of which tr. fer. chlorid. is best, are required to improve the anæmia, and all the emunctories are to be stimulated to remove the deleterious matters from the blood. He had very serious objections to operative treatment—it produces too much shock, and is not to be resorted to until all other means have failed; if the case cannot be allowed to continue longer, labor is to be induced.

DR. ROSEBRUGH, of Hamilton, said it was of the utmost importance to ascertain whether kidneys were healthy before pregnancy, as few cases in which Bright's disease occurred could be allowed to go on to full term. He dissented strongly from the doctrine that pregnancy should be terminated as soon as the presence of albumen in the urine is ascertained. The case should be guided and watched, but pregnancy is to be terminated only for the gravest cause.

DR. TEMPLE, of Toronto, agreed in the main with the opinions advanced in the paper. He had long since abandoned the theory that pressure of the uterine tumor caused the albuminuria. The cause may perhaps be found in the increased arterial tension as indicated by the late Dr. Mahomed. He relies chiefly on morphine in convulsions, giving it in half grain doses hypodermatically, every two hours or more as needed.

DR. MOORE, of Rochester, said that the old authors described a condition of albuminuria chronic in character, requiring persistent catharsis. He cited some cases, agreeing with such a description, coming under his own observation. In these he selected Epsom salts as best meeting the requirements, being efficient and but little irritating. Enough should be given to produce three motions daily. He had continued such treatment for many months in cases of albuminuria with very severe dropsy. At first the improvement was slow, but it was ultimately quite satisfactory. One such case was seen twenty years after in perfect health. He became convinced that one of the most powerful agents, even in organic disease, is steady laxation. There are conditions of chronic albuminuria of non-organic kind which, if not interfered with, will become organic, terminating fatally, but which may be interfered with and cured.

He knew no better agent in the albuminuria of pregnancy than Epsom salts given as above. It is entirely free from danger of producing miscarriage. If albumen does not diminish, it keeps the patient free from bad symptoms as headache, nausea, etc., and she is carried along safely. In puerperal convulsions he would give a large dose of calomel—it is slow but sure. Follow it in a short time by a *terrific rider* of croton oil. In mean time to suspend convulsions, give ether—it will stop them for hours but not permanently arrest them. It should be given sufficiently freely to keep the patient fully under its influence. It may be given with perfect safety when the patient is in deepest coma; it is a mistake not to give it then, and so prevent further convulsive attacks. As soon as the calomel and croton oil act he feels that his patient is quite safe and she can be left without any further concern.

Drs. MacDonald, of Hamilton; Brouse, of Brockville; Ferguson, of Toronto; Mitchell, of Enniskillen; and Harrison, of Selkirk, also took part in the discussion.

DR. MCKINNON, of Guelph, then reported *Some Cases of Ovariotomy*.

AFTERNOON SESSION.

DR. DUPIUS, of Kingston, read notes on a case of *Multiple Hepatic Abscesses with Petrifaction of Gall-Bladder*. The petrified gall-bladder was about two and a half inches long and resembled in size and shape a partly flexed middle finger.

He also read notes and presented a specimen of *Malformation of Rectum and Anus* (*Congenital*) in which the rectum opened into the bladder.

OFFICERS FOR THE ENSUING YEAR.

The Nominating Committee presented their report as follows, which was adopted:

President.— Dr. J. H. Richardson, of Toronto.

Vice-Presidents.—Drs. Harrison, of Selkirk; Brouse, of Brockville; Moorhouse, of London; Aylesworth, of Collingwood.

Corresponding Secretaries.—Drs. Fraser, of Sarnia; Harris, of Brantford; Aikin, of Collingwood; and Gibson, of Belleville.

General Secretary.—Dr. J. E. White, of Toronto.

Treasurer.—Dr. N. A. Powell, of Toronto.

Time and place of next meeting—Toronto, on 1st Wednesday in June, 1887.

DR. MCFARLANE, of Toronto, gave a short address on

THE SURGICAL TREATMENT OF DIPHTHERITIC CROUP.

The methods of treatment must vary with the type of case. Some die from heart failure, some from œdema of lungs, some from the poison of the disease, etc. The point on which he wished to elicit discussion was as to the propriety of performing tracheotomy in this disease. He believed diphtheritic and membranous croup two distinct diseases. In the latter, tracheotomy should be done when necessary to relieve the laryngeal stenosis; in the former, the propriety of operating is doubtful. He had operated in twelve cases; three were membranous croup, and two recovered; nine were diphtheritic, and all died. In the statistics of cases operated on no distinction was made between the two diseases. In diphtheria, exudation is likely to occur on any point that is irritated, hence it would probably form on the trachea at the point irritated by the lower end of the tracheotomy tube and spread downward.

DR. G. R. MCDONAGH, of Toronto, then presented a paper on

THE IDENTITY OF CROUP AND DIPHTHERIA,

in which he considered first the supposed anatomical pathological differences, and, secondly, the alleged clinical differences in the two diseases. After referring to the theory of Virchow (which he himself afterward abandoned as inadmissible) that the exudation in diphtheria was formed *within*, and that in croup *upon* the mucous membrane, Virchow's later theory of the tissue necrosis beneath the false membrane was discussed. Several eminent authorities were quoted to prove that this feature is not a real distinction, but only a difference in degree, and also that tissue necrosis exists in croup as well as in diphtheria. The difference in the degree of adhesion of the exudation to the mucous membrane was explained by the physiological and anatomical differences of the pharynx and larynx, and particularly with regard to the epithelial layer, which, in the larynx, is separated from the underlying tissues by a distinct homogeneous basement membrane, whilst that in the pharynx passes gradually into the tissues beneath without separation. On microscopical examination it is admitted by pathologists that no real distinction can be detected. The descriptions of Dr. E. Wagner, probably the best authority, show no practical difference.

The clinical aspect was then discussed. Difference of site could not be considered as a real distinction, for not only do we find cases of diphtheria extending to the larynx, and cases clinically answering to croup extending to the pharynx, but we have the best authority (Sir William Jenner) for saying that true diphtheria may be limited entirely to the larynx. The reason that this is not more frequently seen to be the case is often due to want of the requisite careful examination by the physician. With regard to the alleged non-contagiousness of croup, it was argued first that not unfrequently so-called croup does spread, as, for instance, when one member of a family is attacked with the regular form of croup and afterward other members of the same family contract diphtheria. Secondly, when the disease does not spread the original case may have been only one of simple acute laryngitis with dried catarrhal secretion, and not one of membranous croup at all. Thirdly, that the fact of the disease not always spreading is no reason that it is not diphtheria. The different degree of the general toxæmic effect and the swelling of the neighboring glands was explained most fully on physiological and anatomical ground. The writer held the opinion that the toxæmia is due in part, at least, to absorption of septic matter from the diseased parts. After showing the great richness of the lymphatic absorbent supply in the pharynx, and the connection with the glands about the angle of the jaw, and in contrast the very scanty development of the lymphatics and paucity of glands in connection with the larynx, the writer argued that here is to be found the chief cause of the severe adynamia in diphtheria, and, further, that the same cause is responsible for the greater frequency of albuminuria in diphtheria, and perhaps also for the paralysis. The case of Hüter's of undoubted croup was quoted, in which complete paralysis of the pharyngeal muscles took place. The writer believed, for these reasons, that so-called membranous croup and diphtheria are the same disease with different sites of local manifestation.

DR. CRONYN, of Buffalo, had no doubt that diphtheria is a constitutional disease and that true croup is always true diphtheria, and, therefore, always also a constitutional affection. Twenty-three years ago his finger was bitten by a child suffering from membranous croup. Eight days later a little pellicle formed at the seat of wound; after four days he had malaise, headache, and in three days more his throat was sore and he was very ill. He passed through a severe attack of diphtheria. From his own experience he entirely objected to local treatment on account of the suffering it produces as well as on account of its inefficiency, owing to the disease being constitutional. He would in no case perform tracheotomy.

DR. W. T. AIKINS, of Toronto, had opened the trachea in many cases. They all died. If they recover after tracheotomy, their recovery is not due to the operation.

DR. PALMER, of Toronto, said there was a line of successful cases of tracheotomy in true diphtheritic croup down to the present from the time of Trousseau, who had one successful case in four. They are sure to die without the operation; we should, therefore, give them the benefit of any chance afforded by it.

DR. MCPHEDRAN, of Toronto, said that tracheotomy has saved many cases of diphtheritic laryngitis is established on the most indisputable authority; it is too late, therefore, to challenge it as a proper operation in many cases. He believed that not a few cases are lost

through inefficient nursing after operation; it is useless to operate unless the child receives the most skilful management. In many cases of catarrhal inflammation of larynx and trachea the secretion becomes so inspissated as to appear almost membranous; this is strongly emphasized by Professor James. These cases present symptoms indistinguishable from those of membranous croup. Such a case came under his own observation lately in a child, one and a half years old, who was recovering from scarlatina. After the symptoms of croup had disappeared, death took place from a low form of pneumonia. Doubtless many cases of recovery after tracheotomy were just such as this one. He desired to enter his protest against the directions for treatment of diphtheria given by almost all the authorities. They give specific directions for frequent local applications to be made to children without any cognizance being taken of the impossibility of doing so in the majority of cases without a struggle, in which the child suffers more injury than can be counterbalanced by the entire local treatment.

DR. ATHERTON, of Toronto, said that he had had a case recover after tracheotomy in which membrane formed on the wound and the father had diphtheritic membrane form in the pharynx. He thought acute croupal cases unsuitable for operation; the more gradually the stenosis is developed, the greater the prospect of recovery. The same rule holds true in diphtheria, in which the deposit occurs on any part.

DR. PALMER, of Toronto, followed with a paper on *Diseases of the Eye in Pregnant Women.*

DR. A. H. WRIGHT, of Toronto, read a paper on

SECONDARY PUERPERAL HEMORRHAGE,

the conclusions of which were that nearly all cases are due to retention of pieces of placenta and that the proper treatment is to explore the uterus.

A LARGE URIC ACID CALCULUS.

DR. AYLWIN, of Kingston, showed the cast of a calculus, oval-shaped, measuring nearly twelve inches in longest diameter, and weighing about twenty ounces. It was removed by the suprapubic operation. It was the largest uric acid calculus on record.

DR. TREMAINE, of Buffalo, said the suprapubic method was by far the safest cutting operation. By it you avoid the possibility of hemorrhage, also injury to the genital apparatus. He believed the latter consideration of great importance, especially in children. Of seventeen cases of children cut by the perineal section reported by Dr. Halberstadt, of Pottsville, Pa., only one had issue. It was best to suture the bladder in ordinary cases, but in cases in which there was cystitis, etc., an opening had better be left for drainage. The existance of an enlarged prostate was an additional reason for preferring the suprapubic operation to perineal section. The bladder was more easily entered, and if a small central elevation existed at the neck of the bladder, it could be pinched off. The peritoneum is in some danger of being wounded, but with care can be avoided. It was opened in one of his own cases, and bowel protruded. A suture was passed through the abdominal wall and bladder, and the man recovered without a bad symptom. In no case had hernia followed the operation, so far as he knew. He believed the operation would give better results than even rapid lithotrity.

DR. W. T. AIKINS, of Toronto, referred to some cases in his own experience, in one of which there followed hernia.

DR. CAMERON, of Toronto, was strongly in favor of the high operation, especially in children, on account of non-interference with the genitals, and of the high position of the bladder. He, however, took issue with Dr. Tremaine in cases of enlarged prostate, because in these the prostatic trouble is capable of greater relief by perineal section. Besides, in these the stone cannot be raised out of the pelvis. He drew attention to the fact first pointed out by a London surgeon, that the bladder, when forced up, has its posterior surface brought upward and forward, and exposed to the line of incision.

EVENING SESSION.

DR. OLDRIGHT, of Toronto, presented a paper on

SOME POINTS IN THE TREATMENT OF COLLES'S FRACTURE.

He said that great pains should be taken to secure perfect coaptation. The splint used is usually too long; it should extend only as far as the first phalanges at first, so as to allow of passive motion at end of eight or ten days. This is of special importance. The splint should then be gradually shortened, till it extends only to the metacarpal bones. Bandages should not be applied very tightly.

DR. MOORE, of Rochester, said there was great inequality in the results of treatment of this fracture; one was good, and another bad. He then discussed the anatomy of the wrist, pointing out that the hand is wholly supported by the radius, the ulna being separated by the intervention of the triangular fibro-cartilage which is attached by its apex at the base of the styloid process. The force causing the fracture might be of three degrees; 1st, just sufficient to break the radius; less than this would simply sprain the wrist; 2d, the balance of force after fracture causes dislocation of ulna, in which the triangular cartilage is torn from its attachment at the base of the styloid process, or, more frequently, the styloid is broken off, leaving a pointed base, which is forced into the anterior annular ligament, from which it is often with difficulty dislodged; 3d, the force is so great as to lead to a compound luxation, the ulna being driven through the skin beside the pisiform bone. He had reached these conclusions from the results of a number of post-mortem examinations of recent and old fractures.

In the treatment of simple cases without dislocation, any kind of splint, pistol or other, usually gave good results; but if there was dislocation of the ulna, the pistol splint made matters worse, and unless the luxation is reduced, no kind of treatment gives good results. He then explained the method of treatment devised by himself, and demonstrated its application on the arm of one of the audience. In cases that came to him with bad results he had not hesitated to break the bone again as long as six months after the accident, but after that the union is too firm to render this method advisable. In such cases the end of the ulna may be removed with much benefit. He removes the dressing, in all cases, in three weeks, and resorts to passive motion very early in the treatment.

DR. CAMERON, of Toronto, related some cases under his care, in which there was dislocation. They were

treated after Dr. Moore's method, with the most satisfactory results. He pointed out that dislocation might be prevented by impaction of the fracture. He concluded by moving a vote of thanks to Dr. Moore for his exposition of his views on this fracture and his method of treatment.

DR. JONES, of Port Perry, in seconding the motion, said he had followed Dr. Moore's teaching for the last sixteen years, and his results had been almost invariably satisfactory. The motion was most cordially assented to.

THE PRESIDENT-ELECT was then conducted to the chair and took his seat amid applause. He briefly returned thanks for the honor conferred on him.

After the usual complimentary motions, the Association adjourned.

CORRESPONDENCE.

THE MEDICAL SCHOOL OF MAINE.

TO-DAY the Medical School of Maine held its sixty-sixth graduation exercises, and added twenty graduates as its contribution to the ranks of the profession. Until the organization of the Bowdoin Medical Alumni Association, in 1884, these exercises were confined mainly to reading two or three theses, and the public presentation of diplomas by the President of Bowdoin College. Now they are held in the Memorial Hall of the College, increased by a formal address by some invited guest and a valedictory from a member of the class, and rendered more attractive by choice music and daintily engraved programmes, and crowned by a general reunion and banquet given by the Medical Alumni. All of which argues well for the progress and zeal of the Alumni and the good taste of graduating classes.

The exercises of to-day were characterized by a most excellent address from Rev. Wm. H. Fenn, D.D., of Portland, who selected as his subject "The Moral Element in the Physician."

The valedictory address was then made by Wm. Lawrence Dana, A. B. (Harv.), of Portland.

After the presentation of diplomas, the annual meeting of the Medical Alumni was held, and the following officers elected.

President.—H. H. Hunt, M.D., of Portland.

Vice-Presidents.—D. A. Robinson, M.D., of Bangor, B. F. Dunn, M.D., of Windham.

Treasurer.—F. H. Gerrish, M.D., of Portland.

Secretary.—C. D. Smith, M.D., of Portland.

Following adjournment, the Alumni and their guests repaired to the dining-room and sat down to an elegant banquet.

The chief interest of this portion of the entertainment centred upon the remarks of President Hyde, in response to the toast "Bowdoin College," which gave an inkling of the sentiment of the Trustees relative to the change of the school from Brunswick to Portland. With the members of the Alumni Association this change has become a fixed purpose; the great body of the Alumni desire it, the Faculty of the School are anxious for it, the Maine Medical Association has asked it, and the best interests of the School urgently demand increased facilities for clinical study.

As one of the professors, himself a graduate of Bowdoin College, has said, the School has always been an *honor* to the College, and *never* an expense; the College is asked to put itself to no expense now, yet the plan has been hampered, thwarted, and delayed, and with no reasonable explanation. A committee of conference, respectfully appointed by the Maine Medical Association, was regarded with the utmost indifference, and the medical fraternity begins to feel that such ultra-conservatism ought to have some limit.

The President's remarks indicated the same reluctance on the part of the Board as heretofore, and he very happily likened the school to the blushing maiden whose parents are reluctant and fearful to let her go unhindered to the arms of her first suitor.

The worthy Professor of Medical Jurisprudence, in replying to the sentiment, "The Faculty of the Medical School," detracted somewhat from the force of the eloquence of the President, by remarking that it ought to be reasonably certain that a blushing damsel of some three-score-and-six years had attained to some degree of discretion as to her own affairs, and one would naturally suppose that in refusing an eligible offer to take such a daughter, the parents would exhibit either poor judgment or failing mental powers to an alarming extent.

Dr. L. W. Pendleton, of Portland, responded for "The Portland School for Medical Instruction;" Dr. D. A. Robinson, of Bangor, for "The Alumni;" and Dr. I. T. Dana, of Portland, for "The Maine Medical Association."

The Association then adjourned.

The day was otherwise occupied by various class reunions, and the exhibition at the Medical School building of a new and beautiful collection of plaster casts of the viscera and frozen sections of the human body, just imported by Prof. Gerrish from Leipsic.

BRUNSWICK, ME., June 23, 1886.

NEW INVENTIONS.

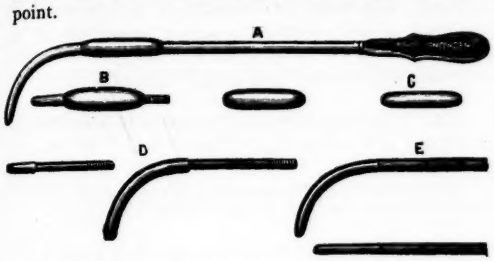
A DESCRIPTION OF A FULL SET OF POCKET BOUGIES MADE OF STEEL.

BY T. NEELY RHOADS, M.D.,
RESIDENT PHYSICIAN AT THE JEFFERSON COLLEGE HOSPITAL, PHILADELPHIA.

I HAVE devised the following extemporaneous mode of making bougies, which presents some points of practical interest. I take an ordinary steel bougie, No. 16 (French) is preferable, and melt a little solder around it about two inches from the beak, allowing it to extend back two inches or more, whittling off the surplus solder with a pocket-knife, each end of the bulb being tapered. Each time the bougie is passed a little more solder may be added, smoothing it with fine sandpaper until the size required has been attained, and the stricture thoroughly dilated.

It afterwards occurred to me that these bulbs might be made of steel, with a hole through each, lengthwise, or that they could be slipped on the bougie or staff. Mr. Snowden subsequently made the instrument for me as represented in the accompanying cut, by the letter *A*, which shows the instrument adjusted ready for insertion. It consists of a No. 16 (French) bougie in two sections, screwed together with a No. 22 bulb in position. *D* represents the curved point of Fig. *A*, showing the shoulder against which the bulbs rest, and also the threads to be screwed into the staff. *B* represents a

straight point with a No. 35 bulb in position, also showing the threads to be screwed into the staff. *C* shows the bulb, and *E* a sheath or bulb, with a circumference exactly the same as that of the bougie used, and which can be used with either the straight or curved point.



Twenty bulbs constructed on this plan are equivalent to forty bougies, for, by using the curved point, twenty curved bougies can be made that will dilate a stricture in any part of the urethra, and by simply removing the curved point and adding the straight, twenty meatus bougies can be made, suitable for dilating strictures at or near the meatus of the male urethra, and all strictures in any part of the female urethra.

I have found that patients do not suffer nearly so much pain in having this instrument passed as with the ordinary bougies. This is due to the following causes: First, the meatus is generally the most sensitive part of the urethra, and is always the *smallest* normally; second, the bougie in general use is so constructed that it gradually increases from the point up, being one or two sizes larger at the handle than at the point, consequently a stricture four or five inches from the meatus will not receive as much stretching as the meatus by at least one size. By using the bulbous instrument, only the same size passes the meatus, and its passage may be effected so quickly as to be almost painless, and when the bulb gets to the stricture it may remain there a minute or so without keeping the meatus on the stretch. Another advantage of the instrument here described is its cheapness. A full set of ordinary curved bougies, say twenty, will cost at least twenty dollars, and will take a large, cumbersome box to hold them, and a similar full set of meatus bougies will cost nearly as much, and need a box more than half as large, so that to carry the two boxes a carriage is almost necessary, while with my device, a case containing twenty meatus and twenty curved bougies and several hard-rubber bulbous explorers can be carried in the inside coat pocket, and can also be carried into a patient's room without exciting remark, and can be made for at least half the cost of the others.

It might be well to have in the case an extra staff of larger size for hyperæsthetic urethras, and an extra point or two, also larger, for enlarged prostates. There are also other variations that might be added.

NEWS ITEMS.

MAINE MEDICAL ASSOCIATION.—At the thirty-fourth annual meeting of this Society, held at Portland on June 1st, 2d, and 3d, the following were elected officers for the ensuing year:

President.—J. B. Walker, M.D., of Thomaston.

Vice-Presidents.—F. C. Thayer, M.D., of Waterville; H. E. Hill, M.D., of Saco.

Permanent Secretary.—Charles D. Smith, M.D., of Portland.

Treasurer.—Aug. S. Thayer, M.D., of Portland.

Corresponding Secretary.—C. E. Williams, M.D., of Auburn.

THE HOME FOR INCURABLES, of Baltimore, has recently received a legacy of $5000, from a deceased friend of the institution. The Home was incorporated less than three years ago and now owns between $35,000 and $40,000, all of which has been raised by donations, subscriptions, and entertainments.

WILLARD INSANE ASYLUM, the central asylum for chronic insane cases in New York State, and which has now more than eighteen hundred patients has reduced the per capita charge to the counties to $2.00 per week, thus supplying the best of care at a minimum cost to the taxpayer. The cottage plan of house construction is in vogue at Willard's.

A LEGAL POINT OF MEDICAL INTEREST.—A writer in the *Medical Age* says that a judge in Big Rapids recently decided that a physician's knowledge is his stock in trade, his capital, and the courts have no more right to take it without extra compensation than to take provisions from a grocery without pay to feed a jury. He declined to compel an expert to testify. Possibly in this manner the question may be decided by the Supreme Court.

MASSACHUSETTS BOARD OF HEALTH.—The reörganized Board of Health of Massachusetts has elected Dr. S. W. Abbott Secretary, and Dr. H. P. Walcott, President.

PROFESSOR VON LANGENBECK, who has been nearly blind from cataract, has been operated on successfully by Dr. Pagenstecher in Wiesbaden.

TYPHOID FEVER IN THE UNITED STATES.—About twenty-five thousand deaths from typhoid fever occur in this country annually, and this represents fully one hundred and fifty thousand cases of the disease. The hundred and twenty-five thousand persons who recover, lose six weeks out of their lives, and carry perhaps some vestiges of the fever's influence for years.

REGULATION OF VETERINARY MEDICINE IN NEW YORK.—The passage by the last legislature of the bill to regulate veterinary practice makes New York the first State to undertake this work. The law compels the registration of veterinarians at the county clerk's office, and makes it incumbent on those registering to have a diploma.

HONORS TO DR. OLIVER WENDELL HOLMES.—The honorary degree of Doctor of Laws has been conferred upon Dr. Holmes by the Universities of Edinburgh, Cambridge, and Oxford.

Dr. Holmes, amid a scene of great enthusiasm, was admitted to the degree of Doctor in Letters (*honoris causâ*) in the Senate House, Cambridge, on Thursday, June 17th. The orator, in introducing him, characterized him as one who combined enthusiasm for science with

distinction in literature, one who "Phæbo ante alios dilectus," had received more than one gift of Apollo, the gift of skill in the healing art, as well as the gifts of eloquence and soul. They had lately heard with pleasure that the writer, whose almost earliest poem was "The Last Leaf," had just announced the "First Opening of the New Portfolio." The well-known volumes of the breakfast-table series were alluded to in the following terms: "Novimus quanto lepore descripserit colloquia illa antemeridiana, symposia illa sobria et severa sed eadem festiva et faceta, in quibus totiens mutata persona, modo poeta, modo professor, modo princeps et arbiter loquendi, inter convivas suos regnat." In allusion to an anecdote lately current in Cambridge, respecting some English travellers, who had deliberately taken the *Autocrat* with them as the only literary resource during a long tour in a remote part of Norway, the orator continued: "Talibus libellis comitati, etiam Scandinaviæ solitudines tolerare possumus; talibus libellis edocti, vitæ humanæ societatem melius diligere discimus." He also referred to the fact that the day was the anniversary of the battle of Bunker's Hill, which was commemorated by a monument in the immediate neighborhood of the Transatlantic Cambridge. It was also the anniversary of the death of Addison, and the language of eulogy once applied to that writer might appropriately be transferred to Dr. Holmes: "Haud ignobili poetæ, in oratione soluta contexenda summo artifici, censori morum gravi sane sed et perjucundo, levioribus in argumentis subridenti suaviter, res etiam serias lepore quodam suo contingenti." Addison, however, died in the forty-seventh year of his age, whereas Dr. Holmes was nearly fifty when his fame as a writer burst out into a fresh brightness like that of the Indian summer: "ubi in ipso autumno novus refulget æstatis splendor." The orator concluded in these words: "Videor mihi vatem quendam canentem audivisse, illum cujus in corde æstas æterna floreret, non vocandum esse senem. Equidem juventutis perpetuæ fontem illum quem trans æquor Atlanticum, Hispanorum nautæ frustra quærebant, nautam hunc feliciorem, non fabulosas inter insulas sed Academicæ juventutis in amore perpetuo, in amore mutuo, invenisse crediderim. Trans occidentis amplum illum sinum, levi phaselo vectus, diu naviget; nautili illius ritu, quem versibus tam pulchris descripsit, indies 'per ampliora ad altiora' tendat. Suam Academiam, per tot sæcula feliciter conservatam, intra paucos menses carmine sæculari iterum celebret, diuque superstes ipse exornet; nostræ denique Academiæ honoris causâ adscriptus, diu et nostrum et totius litterarum reipublicæ ad fructum floreat, vigeat, valeat, litterarum doctor, Oliver Wendell Holmes."—*British Medical Journal*, June 26, 1886.

MEDICAL KNIGHTS BACHELOR.—The honor of Knight Bachelor has been conferred by the Queen upon the following gentlemen: Surgeon-General T. Longmore, Professor of Military Surgery, Netley Hospital, Dr. E. H. Sieveking, Mr. W. White Cooper, and Dr. Douglas Maclagan, Professor of Medical Jurisprudence in the University of Edinburgh.

DR. GUDDEN, who lost his life in an effort to rescue King Ludwig, of Bavaria, from drowning, was a man well known to students of medicine by reason of his contributions to science. He originated a new method of research known as the "atrophy method," which has been of great service in elucidating the difficult problems of brain anatomy.

THE DEPARTMENT OF MEDICINE of the University of Vienna has had a steady increase in the number of its medical students since 1878, until in 1885–86 the number was 2673.

QUAIN'S DICTIONARY OF MEDICINE is about to be translated into Italian by Dr. Tamburini, of Milan.

THE BUFFALO GENERAL HOSPITAL has lately had a bequest of $20,000 from the late Francis W. Tracy.

DEATH OF MELSENS.—The distinguished chemist, M. Melsens, has just died in his seventy-second year. He was the author of the cure of mercurial and lead poisoning by the administration of iodide of potassium, and other important discoveries.

HONORS TO A DENTIST.—The Queen has conferred the honor of knighthood on Mr. John Tomes in recognition of his eminent services to the profession of dentistry.

MEDICAL NONAGENARIANS.—The deaths of two venerable members of the medical profession in Ireland have recently occurred. On June 2, Dr. James Apjohn, lately Professor of Chemistry in the University of Dublin, and for many years representative of that University in the General Medical Council, died at the age of ninety-one; and, also in June, Dr. Richard Grattan, senior Fellow of the King and Queen's College of Physicians in Ireland died in his ninety-eighth year.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING JULY 3, 1886.

GREEN, E. H, *Passed Assistant Surgeon.*—Ordered to Naval Laboratory at Brooklyn, temporary duty.

BROWN, J. M., *Medical Director.*—Member of Retiring and Examining Board.

OGDEN, F. N., *Assistant Surgeon.*—Ordered to "Juniata."

SIEGFRIED, C. A., *Surgeon.*—Three months' leave abroad.

HALL, J. H. H., *Passed Assistant Surgeon.*—Detached from Museum of Hygiene, ordered to Naval Asylum at Brooklyn.

WENTWORTH, A. R., *Assistant Surgeon.*—Detached from "St. Louis," and ordered to "Brooklyn."

DECKER, CORBIN J., *Assistant Surgeon.*—Ordered to "St. Louis."

BERRYHILL, T. O., *Assistant Surgeon.*—Ordered to Museum of Hygiene.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JUNE 29 TO JULY 3, 1886.

PROMOTIONS.

BROWN, JOSEPH B., *Lieutenant-Colonel and Surgeon.*—To be Surgeon, with the rank of Colonel, Jan. 24, 1886.—*Circular A. G. O.*, June 28, 1886.

HEGER, ANTHONY, *Major and Surgeon.*—To be Surgeon, with the rank of Lieutenant-Colonel, Jan. 24, 1886.—*Circular A. G. O.*, June 28, 1886.

VICKERY, RICHARD S., *Major and Surgeon.*—Assigned to duty as Surgeon, in charge of Army and Navy General Hospital at Hot Springs, Arkansas.—*S. O. 150, A. G. O.*, June 30, 1886.